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**THE EVENING
PREPARATORY
AND
BUSINESS
SCHOOLS**

**Catalogue
1914-1915**

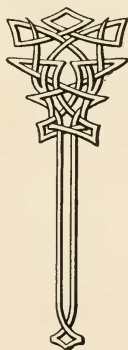
Boston Young Men's Christian Association

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THE
EVENING PREPARATORY
AND
BUSINESS SCHOOLS
OF THE
HUNTINGTON SCHOOL

1914-1915



Published by
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

❄ 1914 ❄

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Calendar

Winter Term

1914-15

Sept. 23, 24, 25, 26	Registration
Sept. 28	Opening of Winter Term
Nov. 26	Thanksgiving Day (Holiday)
Dec. 19 to 26	Christmas Recess
Jan. 19 to 22	Examinations
Jan. 22	Close of Winter Term

Spring Term

1915

Feb. 1	Opening of Spring Term
Feb. 22	Washington's Birthday (Holiday)
May 18 to 21	Examinations
May 21	Close of Spring Term

Summer Term

1915

June 1	Opening of Summer Term
June 17	Bunker Hill Day (Holiday)
Sept. 6	Labor Day (Holiday)
Sept. 14 to 17	Examinations
Sept. 17	Close of Summer Term

Winter Term

1915-16

Sept. 27	Opening of Winter Term
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Organization

General Administrative Officers

ARTHUR S. JOHNSON, *President*

JACOB P. BATES, *Vice-President*

HAROLD PEABODY, *Recording Secretary*

FRANCIS B. SEARS, *Treasurer*

GEORGE W. MEHAFFEY, *General Secretary*

Educational Committee

WILLIAM E. MURDOCK, *Chairman*

ALBERT H. CURTIS

HENRY G. LORD

MORGAN L. COOLEY

GEORGE H. MARTIN

Advisory Committee

PAUL H. HANUS, *Professor of Education, Harvard*

WILLIAM M. WARREN, *Dean, College of Liberal Arts, B.U.*

Executive Officers
of Department of Education

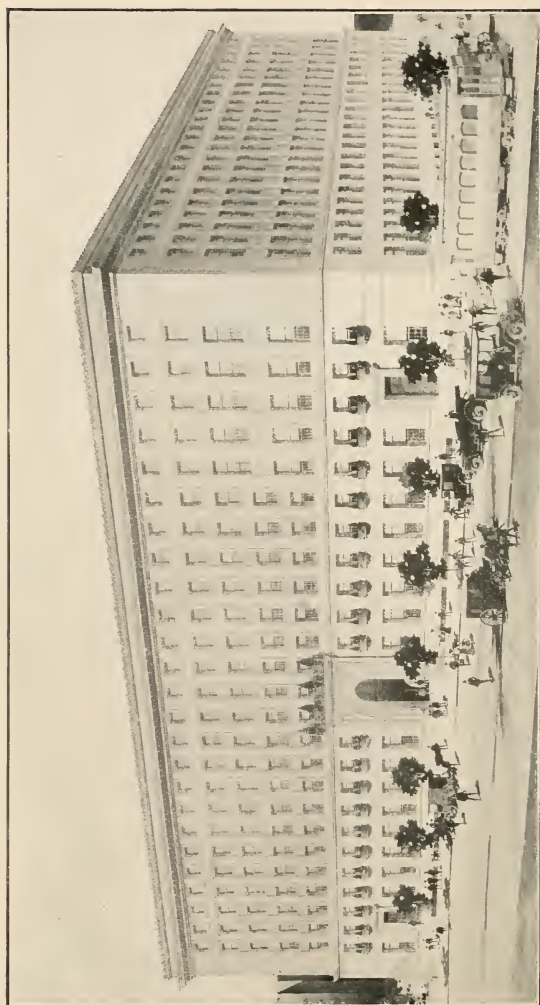
FRANK P. SPEARE, M.H.
Director

GALEN D. LIGHT, A.B.
Asst. Director and Bursar

EDWARD H. BROOKE, A.B.
Registrar

CHARLES B. GRAY, A.B.
Secretary

FRED L. DAWSON
Field Secretary



MAIN BUILDING

Faculty

IRA A. FLINNER, A.B.

(Harvard University)

Principal

JAMES A. BELL, Ph B., A.B.

(Grove City College) (Harvard University)

Assistant Principal,

Mathematics

CHARLES L. CLEAVER, Ph.B.

(Dickinson College)

Mathematics

WILLIAM A. LACKEY, A.B., LL.B.

(Harvard University) (Boston University)

English and Arithmetic

JAMES METIVIER, A.B.

(Harvard University)

Languages

JAMES B. TAYLOR, A.B., A.M.

(Harvard University)

English

WALTER A. BALDWIN, A.B.

(Ohio Wesleyan University) (University of Chicago)

Physics and Chemistry

WAYNE M. SHIPMAN, A.B.

(Harvard University)

History and Languages

JAMES LOGIE

(Glasgow University)

Spanish

WILLIAM L. ESTERBERG, B.C.S.

(Boston School of Commerce and Finance)

Shorthand and Typewriting

HARRY K. GOOD, LL.B.

(Jamestown Business College) (Y. M. C. A. Law School)

Bookkeeping and Penmanship

CHARLES B. GRAY, A.B.

(University of Winnipeg)

Typewriting

RALPH G. WHITE, A.M.

(Grove City College) (Harvard University)

English and Arithmetic

CHARLES N. GREGG, A.M.

(Arcadia University) (Harvard University)

History and Economics

M. K. McKAY, A.B., A.M.

(Ohio State University) (Harvard University)

History

EUSTACE L. GRAVES

Secretary

LEON F. JACKSON

Assistant Secretary

The Evening Preparatory School

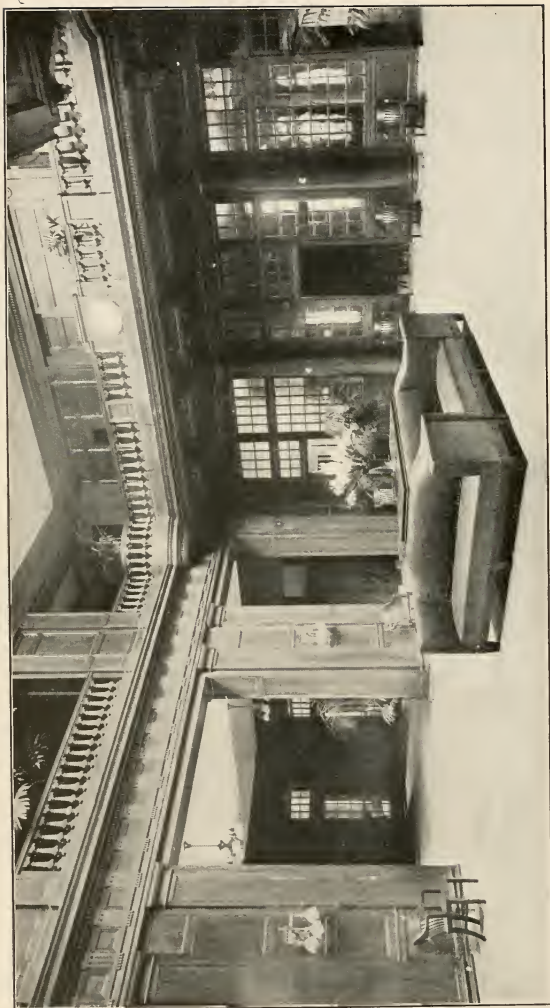
HISTORY

The Preparatory School, one of the eight schools operated by the Department of Education, was founded seventeen years ago in response to the demand for instruction on the part of men who were employed during the day and could not avail themselves of the opportunities afforded by day classes. Throughout this period the School has experienced a steady growth, so that today, owing to the recent reorganization, it has the distinction of being the only Evening Preparatory or High School in the United States which gives work of the same high standard as maintained by the best secondary day schools. By maintaining such quality of work, the School has been able to prepare a large number of men for Harvard, Yale, Brown, Boston University, Tufts, Dartmouth, Massachusetts Institute of Technology, and other colleges, and for the various advanced schools of the Department of Education. Many New England colleges accept the certificates of the School, as well as the diplomas.

The enrollment has increased from fewer than fifty students at the beginning to almost six hundred at the present time. To keep pace with this growth, the School has established a larger and more efficient teaching force; it has systematized and outlined the courses of study in order to do more thorough and intensive work; and it has moved into the best equipped buildings, for educational purposes, in the country.

Mere numbers, however, afford no proper test of the worth of the School. That worth is determined rather by the quality of work the institution performs, and this in turn depends on the character of its teachers and its students. The teachers are college and university trained men of large teaching experience who know of and are in sympathy with the aims and purposes of the ambitious men in the School. The students constitute a body of unusually earnest men who have entered upon their educational work as a part of the business of life, rather than as an elegant pastime. They come, in the main, from homes in which the habits of industry and economy are necessarily fostered. They feel the necessity of working and enter the evening school with definite aims for the future. All of the students are engaged in work during the day.

MAIN LOBBY



AIM AND SCOPE

The aim of the Preparatory School is to prepare young men of intense purposes for scientific schools and for the various advanced schools operated by the Department of Education of the Y. M. C. A.

The subjects offered are those commonly given in the eighth grade of a grammar school and in the four years of a day high school.

The amount covered in each subject during the two terms of 16 weeks each is the same as covered in a year in a day high school. This is possible, for the students pursuing the work are mature and in earnest. The work is further facilitated by the elimination of non-essentials.

BUILDINGS

The location, surroundings, and physical appointments of a school are of primary importance. The location ought to be healthful, accessible, and attractive. The buildings ought to be properly heated, lighted, and ventilated, and, above all, conducive to the health and progress of students at all seasons of the year. The buildings occupied by the Association Schools combine all these good qualities. They are located on Huntington Avenue in the section of Boston noted for its institutions of learning; accessible from all parts of the city and suburbs; and free from the outside influences which distract the attention of students. Nearly four acres of land are devoted to buildings and an athletic field.

Looking at the building from the front, one gains the impression of a large square structure, 240x200x90, but this is not the case. There are, in reality, six buildings, each on its own foundation, and, with the exception of those facing the front and west, which are 90 feet high and 58 feet deep, the buildings are comparatively low, and are connected by corridors and bridges. This arrangement gives exceptionally fine light and air to all the buildings.

The six buildings are as follows: Administration, Assembly Hall, Educational, Natatorium, Gymnasium, and Vocational.

Administration Building

Located in the Administration Building are the lobby, various offices of the administrative staff, the directors' room, committee rooms, libraries, reading and social rooms. This building is the social center of the plant.

Educational Building

This building is 196 feet long by 58 feet wide and six stories high. In the basement are located the heating and ventilating system of the entire plant. The first floor includes game, social,



GENERAL LIBRARY



REFERENCE LIBRARY

and club rooms, and a small assembly hall. On the second, third, and fourth floors are located class rooms, drafting rooms, and laboratories. On the fifth and sixth floors are dormitory rooms.

Gymnasium

This structure is known as the Samuel Johnson Memorial Gymnasium the funds for which were provided by relatives and friends of the late Samuel Johnson. On the main floor is the gymnasium proper which is equipped with the most approved apparatus. In the building are handball and squash courts, lockers, six bowling alleys, shower baths, rooms for special exercising, fencing, wrestling, etc., a running track, and a visitors' gallery. The gymnasium is so arranged that, by a system of sliding partitions, it can be divided into one, two, or three separate compartments, making it possible to conduct a number of activities at the same time. Many new features in gymnasium construction and equipment have been introduced.

Natatorium

This building is located between the Assembly Hall and the Gymnasium and is easily accessible from the locker rooms of the latter. The swimming pool is 75 feet by 25 feet and is under a glass roof which admits an abundance of light and sunshine. The pool is supplied with filtered salt water from our own artesian well, and is heated to a proper temperature by an elaborate system of pipes. The Natatorium is one of the largest and best equipped of its kind.

Vocational Building

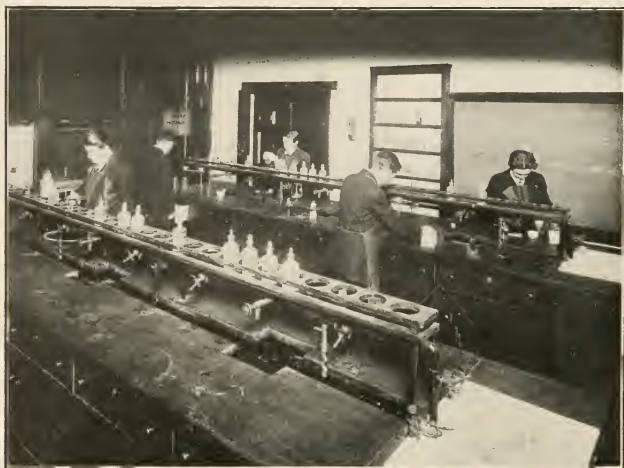
The Vocational Building is located directly back of the main group. This is a substantial structure of three stories, 150x58, in which are located the woodworking plant, the electrical laboratories, machine shop, and lecture halls.

Assembly Hall

The Assembly Hall has a seating capacity of nearly 500. A large stage, suitable for entertainments of all kinds, is provided. The moving picture machine provides a feature which is of interest to our students. Many films on educational topics are shown each term.



PHYSICS LABORATORY



CHEMISTRY LABORATORY
(One of Three)

General Information

Terms

The year is divided into three terms of sixteen weeks each. The winter term includes the period from October to February, the spring term from February to June, and the summer term from June to October.

The work is so conducted that in any two terms a year's work in any subject as counted by high schools is completed. By attending full calendar years, a four year high school course can be completed in considerably less than four years. Students pursue ordinarily only three subjects each term.

Beginning classes are offered in a large number of subjects each term. It is possible for a student to enter at the beginning of any term and select courses suited to his advancement. A number of half courses are also offered each term.

Examination

Examinations are held in all subjects at the close of each term and the standing of each student who has completed a term's work is recorded in our record books. If a student pursues a course part of the term and then drops it, no record of his class standing is kept at the office. Students are warned, therefore, to pursue courses in full and take all examinations, for later they may need an official rating. While the standing of students in regard to scholarship is determined by means of examinations, regularity of attendance and faithful performance of required work are considered equally essential.

The grading is as follows:

A, 90-100%	Very Good
B, 80- 90%	Good
C, 70- 80%	Fair
D, 60- 70%	Poor
F, below 60%	Failure
Passing Grade: 60%	

Sessions

The school sessions are held on each week day evening, excepting Saturday, from 7 to 10 o'clock. A student's schedule may include 1, 2, 3, 4, or 5 evenings a week, depending on his



BOWLING ALLEYS



SOCIAL AND GAME ROOM

selection. As a rule, subjects are given on two evenings a week. It must be remembered, however, that the preparation of lessons is all done outside the classroom. It has been found that because the students are mature and in earnest they can do the work of the course in fewer recitation periods than is customary in a day high school.

Text Books

Students buy their books. It has been found advisable for a student to own his books, for they will be a source of great convenience to him in future years. The book store has on hand all books and supplies used in the school. These are sold at slightly lower rates than prevail in the public book stores.

Libraries

The school has excellent facilities for study in the libraries and reading rooms. Besides the special reference libraries of the various school departments which are equipped with dictionaries, cyclopedias, and special texts for carrying on the work of the school in the most effective way, the students have access to the general library.

Preparation For College

Students who expect to enter college are advised to consult the catalog of the institution they will enter to ascertain the work which is required. By conferring with the principal, the most economical way in which a course can be pursued will be learned. Students who maintain the grade of "B" or above in any subject may be certified in that subject for college.

The tests given at the close of a course are modeled after college entrance examinations. The standards maintained are similar to those of the best day schools.

Special Students

A number of our students do not expect to enter higher institutions of learning. To such students the School offers special courses or combinations of subjects which will benefit them in the work in which they are engaged during the day. By consulting with the principal, a program of studies will be arranged, adapted to the student's special needs.

Tutoring

Every year a large number of men come to us to be tutored. We are able to furnish tutors in any preparatory subject at \$1.00 an hour. The members of the regular faculty are usually available for such work. We are able, however, owing to our proximity to higher institutions of learning, to furnish tutors, should members of our own force be unable to arrange suitable hours.



BILLIARD ROOM



RESTAURANT

Discipline

One reason why the students of the school are able to progress rapidly is that no time is wasted in obtaining discipline. Our students are men who are sacrificing time and money for an education, and they are in earnest. Not since the school has been founded has it been found necessary to expel or even suspend a student. Our teachers use the entire recitation period for instruction. The work is not retarded by frequent requests for attention.

Students' Tickets

Students residing in suburban towns may, on nearly all railroads, travel to and from school at greatly reduced rates. Those under twenty-two years of age are eligible to receive reductions. Application should be made at the office of the railroad regarding these rates.

Dormitory Rooms

Students from a distance may, by early application, secure rooms in the building. Excellent table board can be had, also. The charge for rooms ranges from \$2.00 to \$4.00 a week; good table board from \$5.00 a week up. The rooms and dining facilities are not under the direct management of the school, but of the Boston Y. M. C. A. Students of the school who room in the building are therefore subject to the regulations of the Association.

Scholarships

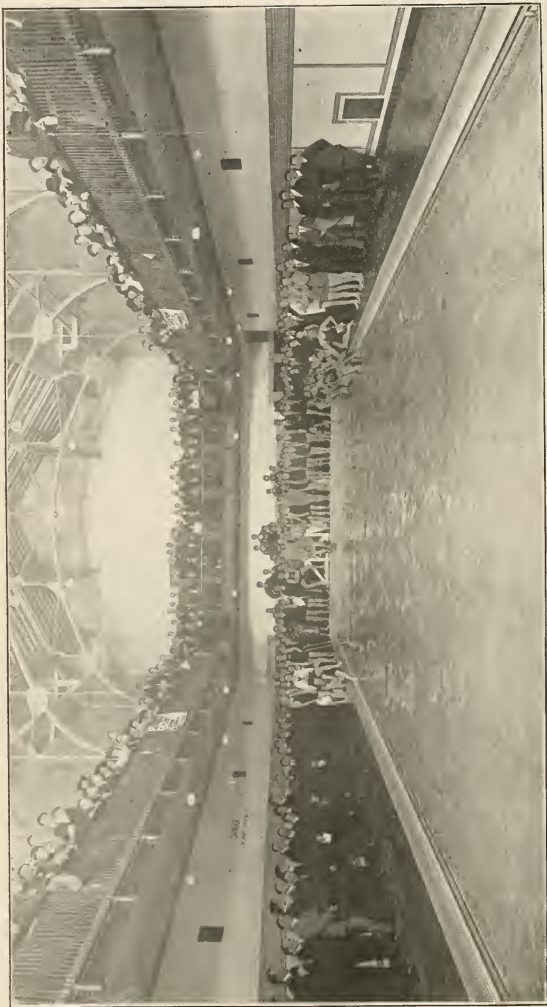
As an aid to worthy men who desire an education and are unable to pay in full even our slight charges, a limited number of scholarships have been provided, which will be judiciously distributed. Application should be made to the principal of the school.

In addition to these scholarships there are others in the advanced schools of the Department of Education available for graduates of the Preparatory School. Each year graduates of the Preparatory School are granted free tuition for one year in the Evening Law School, the School of Commerce & Finance, the Polytechnic School, or the Co-Operative Engineering School. The value of these scholarships varies from \$50. to \$125.

These are awarded to graduates who have pursued in this school ten of the fifteen units required for graduation and have maintained a ranking of at least five A's and five B's. A further condition is that the student must enter the advanced school free of conditions.

Lectures

Many of the numerous lectures offered by the Association are available to members, free of charge. These are under the



WATER CARNIVAL

direction of the social and the religious work departments. Space does not permit giving detailed information of this important feature. Special pamphlets, prepared by the foregoing departments give the list of speakers and courses available.

Clubs

A large number of clubs are organized and conducted by the various departments, the most important of which are as follows:

Congress

The congress is organized similar to the National body. Anyone may become a member, by adhering to the rules of the organization, and by naming the state he will represent. Members introduce bills and participate in the debates and discussions. In this way experience in public speaking is gained. We recommend that those who wish training in public address and in parliamentary practice join the congress.

Current Events Club

Those who are not interested in the Congress may be interested in joining the Current Events Club. The name indicates the character of the club. Each week, discussion in the form of debates take place. One can secure valuable training in public address by joining either of the aforementioned clubs.

Orchestra

Those musically inclined will find recreation and an opportunity to improve their musical education by joining the orchestra. It is under the leadership of an experienced musician and leader, and the benefits a member derives from the rehearsals and concerts are considerable. The orchestra is in great demand throughout the Association, and finds many opportunities to make itself useful.

Glee Club

The Glee Club is another musical organization which attracts the best musical talent of the membership. It is under the direction of a man who has had much experience in choral work. Concerts are given throughout the year, and much valuable training is received by the members. Ability to read simple music is the only necessary qualification for membership.

Moving Pictures

The Association has in Bates Hall a modern moving picture machine which is used constantly to provide entertainment and instruction. Many notable educational films are shown each year, which are worthy of the attention of the students. Much information can be received in this way in a short time with little effort.

GYMNASIUM



Athletics

By paying a small additional fee, students may avail themselves of the privileges of the gymnasium and swimming pool. Competitive games are held with the other Y. M. C. A.'s and athletic clubs. An inspection of our athletic facilities will convince you that they are the finest in New England. Opportunity is given for athletics before the opening of the evening sessions or during the vacant periods.

The following teams are organized each year: Basket ball, swimming, track, gymnastic, wrestling, baseball, tennis, bowling. There are usually a number of teams for each branch of sport, making it possible for every student to play on one of them.

For those not interested in games, opportunity is given to join one of the many gymnasium classes, which are directed by experienced men. The rates for the various branches of physical work may be had by applying to the Direction of the Department of Recreation and Health.

Bar Examinations

A large number of our students prepare for the Bar. We reprint below a copy of the recent ruling of the Board of Bar Examiners:

An applicant must show by certificate or certificates that he,—

a. Is a graduate of a college, or has passed the entrance examinations of a college, or of the college Entrance Examination Board, or examinations substantially equivalent thereto; or has complied with the entrance requirements of a college or

b. Is a graduate of a day high school, or OF A SCHOOL OF EQUAL GRADE; or

c. Has passed the examinations given for admission to the state normal schools of Massachusetts in the following subjects:—

I. Language,—English, with its grammar and literature.

II. United States History,—The history and civil governments of Massachusetts and the United States, with related geography and so much of English history as is directly contributory to a knowledge of United States History.

III. a. Latin or b. French,

IV. a. Algebra or b. Plane Geometry.

V. Any two of the following:—a. Physiology and Hygiene, b. Physics, c. Chemistry, d. Botany, e. Physical Geography.

N. B. A certificate or certificates showing compliance with the foregoing requirements must be filed with the chairman of the board at least ten days before the examination which the applicant desires to take.

A new act was passed by the Legislature of 1914 but the Board has determined that it in no way affects the old regula-



DRAFTING ROOM



PHYSICS LECTURE ROOM

tions. We print a letter recently received from the chairman of the Board.

"The members of the Board of Bar Examiners have carefully considered the new statute, chapter 670 of the Acts of 1914, relating to rules of the Board of Bar Examiners. They are of the opinion that their existing rule as to general education does not conflict with said statute, and have reached the conclusion that said rule should not be altered."

*Hollis R. Bailey,
Chairman Board of Bar Examiners.*

Accepts Diploma

The Board of Bar Examiners accepts the diploma of the Preparatory School. This is issued to students who have completed fifteen units of work or what is ordinarily required for graduation from a day high school. (See page 33).

Normal School Examinations

The School prepares for the Normal School Examinations which are given at the normal schools and conducted by the Board of Education. Students who are not high school graduates and do not wish to qualify for a high school diploma or our Evening Preparatory School diploma are advised to take those examinations.

Membership

All educational work is conducted as part of the larger work of the Young Men's Christian Association. The Boston Association now has nearly 7000 members almost half of whom are enrolled in the Department of Education. The annual membership dues are \$2.00. By paying this sum, one becomes a member of the largest association in the world and may enjoy, free of additional cost, many features of its great work. Such membership also gives one privileges in other associations in America, subject to local regulations. By paying certain additional fees larger privileges are obtained in the various departments.

Courses of Study

ADMISSION

Any young man of good moral character, regardless of occupation or creed, who has completed at least six grades of a grammar school course, or the equivalent, may be enrolled in the School.

Courses adapted to the needs and education of such applicants are offered each term. It is not advisable, however, for one younger than fifteen years of age to enroll, for the courses are adapted to those who are sufficiently mature and physically able to work during the day and to study at night.

The Departments

ENGLISH

The work of the Department of English comprises courses in composition and literature, which aim:—(1) to give the student a command of correct and clear English, spoken and written; and (2) to enable him to read with intelligence and appreciation.

To secure the first end, training in grammar and the simpler principles of rhetoric, and the writing of frequent compositions are essential. The student learns to spell, capitalize, and punctuate correctly. He is further able to show a practical knowledge of the essentials of English grammar, including ordinary grammatical terminology, inflections, syntax, and the use of phrases and clauses; a thorough training in the construction of the sentence; and familiarity with the principles of paragraph division and structure.

To secure the second end, the student reads and studies in the classroom the works named in the various courses.

English Aa, Ab—Elementary Course

This course deals largely with spelling, punctuation and applied English Grammar, with special drill in all kinds of commercial papers, notes, checks, drafts, bills, and receipts; telegrams and letters of introduction, recommendation, and application. (This course is usually required of all those who are not grammar school graduates.)

English 1a, 1b—Applied Grammar

Composition: Elementary work in the theme, the paragraph, and the sentence; Letter Writing. Irving's Sketch Book; Scott's Marmion; Longfellow's Courtship of Miles Standish; Macaulay's Lays of Ancient Rome.

English 2a, 2b—Rhetoric and English Composition, Oral and Written

Bunyan's Pilgrims' Progress; Homer's Iliad; Eliot's Silas Marner; Stevenson's Treasure Island; Coleridge's The Ancient Mariner.

English 3a, 3b—History of English Literature

Argumentation, written and oral. Addison's Sir Roger de Coverly Papers; Tennyson's Idylls of the King; Shakespeare's Merchant of Venice and Julius Caesar.

English 4a, 4b—History of American Literature

Composition, oral and written. Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso and Comus; Burke's Speech on Conciliation with America; Macaulay's Life of Johnson; Palgrave's Golden Treasury.

English 5a—English Composition. (Advanced Course)

A careful training in the principles of prose composition with special emphasis upon usage. Particular attention is given to punctuation, the construction of sentences and paragraphs, and the use of words. Besides the daily themes, four or five longer themes of 1000 words or more, involving practice in Exposition, Description, Narration and Argument, are written. The object of the course is to enable the student to express his thoughts freely, clearly, and forcibly; the writing of straightforward English is the end toward which the efforts of the student are directed. The course is similar to English A of Harvard University. Open to men who have completed course 4a and 4b and others who can profit thereby.

English 6a—Public Speaking

This course is intended to provide systematic training in enunciation, inflection, emphasis, and other essentials of public speaking. A practical and business-like style of speaking is inculcated, the chief aim being to train the student to think upon his feet and express his thought effectively. Timid speakers are encouraged to persevere and do their best. Considerable time is given to extempore speech, to debating and to the presentation of argumentative material.

LATIN

A careful study of Latin benefits the average student in several ways. In addition to quickening his observation,

strengthening his reasoning powers, and fortifying him in the ability to do hard work, it gives him an understanding of English grammar such as he cannot possibly obtain from exclusive drill in English alone, and furnishes the essential principles required in the study of any of the modern European languages. Familiarity acquired with the meanings of Latin words and with important principles of word formation enables the student to recognize on first sight the meanings of a large percentage of English words that will be new to him, and gives him an insight into the real significance of hundreds of words with which he is already loosely familiar. The practice of accurate translation gives the student greatly increased facility in the choice of English words, and helps him thereby to make forceful use of the English language.

Latin 1a, 1b—Beginner's Latin

First year Latin lessons complete. Easy Latin prose.

Latin 2a, 2b—Caesar, Sallust and Latin Composition

Review of constructions, forms and application of rules of syntax.

***Latin 3a, 3b—Cicero's Orations Against Cataline**

For the Manilian Law, for Archias. Grammar. Composition. Translation at sight from Caesar and Sallust.

***Latin 4a, 4b—Virgil's Aeneid**

Translation at sight from Ovid, Sallust and others. Composition.

GERMAN

The aim of the first year is to enable the student to acquire a correct pronunciation, to gain a complete mastery of fundamental grammatical forms and principles, and to get a vocabulary that will make it possible to read simple German texts intelligently.

In the second year the forms and principles of German grammar are thoroughly reviewed, the working vocabulary constantly enlarged, and exercises both in composition and conversation continued daily.

German 1a, 1b—

Harris' German Lessons; Guerber's *Märchen und Erzählungen*. Special emphasis is placed on pronunciation and the acquiring of a vocabulary.

German 2a, 2b—

Study of grammar continued. Special attention to syntax. Selected readings. Students who complete German 1 and 2 are prepared to take college examinations in Elementary German.

***German 3a, 3b—**

Becker, Deutsch für Ausländer; Wildenbruch, Das edle Blut; Baumbach, Die None von Lilencron, Anno 1870; Keller, Kleider machen Leute; Heine, Die Harzreise; Meyer, Das Amulet; German Composition.

***German 4a, 4b—**

Becker, Deutsch für Ausländer; Schiller, Wilhelm Tellor Die Jungfrau von Orleans; Lessing, Minna von Barnhelm; Goethe, Egmont, Hermann und Dorothea, and critical essays on Germany, its people and its literature.

*Classes will be organized only when a sufficient number enroll.

ROMANCE LANGUAGES

FRENCH

The courses in French are planned with the purpose of giving to students (1) an appreciative comprehension of French, both as a literary and as a spoken language; and (2) a sufficient knowledge to fit them for advanced work in higher schools. The essentials of the grammar are thoroughly mastered by continued drill with constant application. The attainment of a good pronunciation receives careful attention, and from the beginning the ear of the student is trained to understand spoken French. Conversation is included in every course.

French 1a, 1b—

French Grammar. Selected readings. Special emphasis placed on pronunciation and the acquiring of a vocabulary.

French 2a, 2b—

French Grammar. Special composition work and selected readings. Students who complete both French 1 and 2 are prepared to take college entrance examinations in Elementary French.

***French 3a, 3b—**

Fraser and Squair's Grammar; Lamartine, Revolution Francaise; Selections from Maupassant, Th. de Banville, Meilhac at Halevy, and others; Koren, French Composition.

***French 4a, 4b—**

Classic plays, and selections from Balzac, and others; Victor Hugo, Hernani; Rostand, Cyrano de Bergerac; critical essays on France, its people and its literature.

SPANISH

Owing to the opening of the Panama Canal, Spanish has become the leading Romance language in America today. Many

young men, seeing the great opportunities in business with the South American countries, feel that a command of Spanish is essential to success.' The Department, therefore, is prepared to give to the student a practical command of Spanish as a medium of expression.

Spanish 1a, 1b—Elementary Course

The basis—correct pronouncing and accent. Conversation. Mansanto Langueller's Grammar and Text Books.

Spanish 2a, 2b—Continuation of Spanish I

Grammar, conversation and composition, suitable Text Books.

Spanish 3a, 3b—Commercial Course Entirely

Reading, writing, translating and conversing on commercial subjects: commercial, correspondence, business terms, South American customs. A forceful and easy style of expression. Monsanto's Langueller's Grammar and Harrison's Commercial Correspondence.

Spanish 4a, 4b—Advanced Commercial Course

Pitman's Spanish Correspondence.

GREEK AND ITALIAN

Classes will be organized in these languages if the number of applicants is large enough.

HISTORY

The aim of the department of History is to give a broad knowledge of the vital conditions in the growth of the leading countries of the world. This includes the study not only of the important facts, but more especially of the processes of development in government, society, business, religion, and education. The past is studied that the present may be better understood.

History 1a—United States History (Elementary Course)

This course is primarily for those students who have never studied American history. Its aim is to prepare one for a thorough study of United States History.

History 2a, 2b—United States History

Division 2a deals with the Colonial Period—from the era of discovery to the meeting of the Federal Convention in 1787.

Division 2b includes the National Period—from the foundation of the constitution to the present time.

History 3a—English History

A study of the great lessons of Anglo-Saxon development in freedom and intelligence.

History 4a, 4b—Ancient History

The first division is devoted to the history of Greece; the second, to the history of Rome. The course aims to place the principal emphasis upon the characteristic elements of these civilizations and the contributions which they made to modern civilization.

GOVERNMENT AND ECONOMICS

While these courses are designed to serve as preparatory courses for those planning to enter business, and for those expecting to take up advanced work in some special field, they are intended, also, to give to the general student information and training of value in the exercise of intelligent citizenship. Some grasp of general principles, some knowledge of concrete problems, and some insight into current practical problems will be derived from these courses.

Government 1a, 1b—American Government

This course includes national, state and local government. Based on Bryce's American Commonwealth.

Economics 1a, 1b—Principles of Economics

This course is designed not only to give an introduction to economic theory, but also to furnish some insight into a number of practical economic problems. Thus, there are elementary studies of trade economics, currency, trusts, the tariff, and socialism. Based on Bullock, Fisher, Taussig, Seager and other standard authors; supplements by questions and problems.

MATHEMATICS

The purpose of the courses in mathematics is two-fold: (1) to make the student acquainted with such mathematical methods as are most likely to be useful in the study of other subjects and particularly in practical affairs; and (2) to give him a thorough training in such fundamental branches as shall furnish a sufficient basis for advanced mathematical studies.

Mathematics 1a, 1b—Arithmetic

A course in general arithmetic, covering much of the ground usually covered in grammar schools. The course includes the most essential subjects.

Mathematics 2a, 2b—Algebra I

The essential operations of algebra to quadratics. The emphasis is on the fundamental principles.

Mathematics 3a—Algebra II

Covers the college entrance requirement. Designed for students who have acquired the fundamental principles.

Mathematics 4a, 4b—Plane Geometry

The five books. A large number of original exercises stimulate the power to reason clearly and to derive logical proofs. Special attention is given to those who expect to take entrance examinations.

***Mathematics 5a—Solid Geometry**

The standard theorems in solid and spherical geometry. Stress is laid upon numerical exercises involving mensuration of solid figures. This course is intended primarily for those who are preparing for college.

***Mathematics 6a—Trigonometry**

This course is intended for those who wish to offer trigonometry for college entrance, or for those who intend to take up engineering work.

*For outline of courses in higher mathematics see Polytechnic School catalog.

SCIENCE

Science 1a, 1b—Physics I

The work offered in physics presents an elementary introduction to the general subject. Mechanics, heat, magnetism, electricity, and light are taken up, usually in the order named. The course aims to encourage in the student a habit of observation, and to develop his ability to think intelligently about simple physical facts, many of which are observable in every day life. It will prepare anyone who completes the work satisfactorily to pass the entrance examinations of any college.

Science 2a, 2b—Inorganic Chemistry I

The general purpose of this course is similar to that of Physics I. The work is divided between lecture-room discussion and demonstration of the fundamental principles and facts of the science, on the one hand; and, on the other, experimental work in the laboratory by the students individually. This latter work is closely supervised and the student is required to do his work neatly, observe results carefully, and endeavor to reason from these results to legitimate conclusions. He must also keep systematic records of this work, as directed. At least fifty experiments are performed.

Physical Geography 1a—

This course gives a large amount of practical information, bearing directly on the physical conditions that affect customs, occupations, and food distribution.

Political Geography 1a—

A study of the various countries, relative to their commercial intercourse. The student is made familiar with the

principal waterways, cities, products, imports, exports, etc. The course is a continuation of History 1a.

Physiology and Hygiene 1a—

This course includes a study of the structure, the various systems and organs of the body, and the observance of the laws of health.

REQUIREMENTS FOR GRADUATION

Students are graduated from any one of the three courses when fifteen units of work have been completed.

A unit of work as counted by a day school or by College Entrance Boards is the amount covered in a subject meeting four or five times a week during a school year. In this school it is the equivalent amount of work completed in a subject in two terms of sixteen weeks each. The same standards are maintained as in the best day schools.

DIPLOMA COURSES

The following courses of study leading to a diploma are offered:

Classical Course

Students who prepare for Harvard or classical courses of other colleges are advised to select this course.

Required		Electives	
		Two and one-half units are to be selected from the following:	
English	4 units	Solid Geometry	$\frac{1}{2}$ unit
Algebra	$1\frac{1}{2}$ "	French	2 or 3 units
Plane Geometry	1 unit	German	2 or 3 "
Latin	4 units	Ancient History	1 unit
History	1 unit	U. S. History	1 "
Science	1 "	Physics	1 "
		Chemistry	1 "

Scientific Course

Students who prepare for the Mass. Institute of Technology or for other scientific schools are advised to pursue this course. The required work is uniformly asked for by the best scientific schools.

Required		Electives	
		Two are to be selected from the following:	
English	4 units	Trigonometry	$\frac{1}{2}$ unit
Algebra	$1\frac{1}{2}$ "	Chemistry	1 "
Plane Geometry	1 unit	Mechanical Drawing	1 or $\frac{1}{2}$ unit
Solid Geometry	$\frac{1}{2}$ "	Adv. French	1 unit
German	2 units	Adv. German	1 "
French	2 "		
History	1 unit		
Physics	1 "		

General Preparatory Course

This course is recommended for those who wish merely a secondary school course. Considerable election is permitted making it possible to complete a course which will give a broad training or admit to college.

Required	
English	4 units
Algebra	1 unit
Latin, French, German or Spanish	2 units
History	1 unit
Science	1 “

Electives

Six are to be selected from the following electives, to make a total of fifteen, the number required for a diploma.

Algebra II	$\frac{1}{2}$ unit
Plane Geometry	1 “
Solid Geometry	$\frac{1}{2}$ “
Trigonometry	$\frac{1}{2}$ “
Ancient History	1 “
Physics	1 “
Chemistry	1 “
Physiology	$\frac{1}{2}$ “
Phys. Geog.	$\frac{1}{2}$ “
Com. Geog.	$\frac{1}{2}$ “
Economics	1 or $\frac{1}{2}$ unit
French	1, 2, or 3 units
German	1, 2, or 3 “
Latin	1, 2, 3, or 4 units
Spanish	1, 2, or 3 units
Bookkeeping	1 unit
Advanced Bookkeeping or Accounting	1 unit
Typewriting (Complete Course)	$\frac{1}{2}$ “
Shorthand (100 words per minute)	1 “
Mechanical Drawing	1 or $\frac{1}{2}$ unit
Business English	$\frac{1}{2}$ unit
Commercial Arithmetic	$\frac{1}{2}$ “
English History	$\frac{1}{2}$ “
Public Speaking	$\frac{1}{2}$ “
Advanced Composition	1 or $\frac{1}{2}$ unit
Government	1 or $\frac{1}{2}$ “
Economics	1 or $\frac{1}{2}$ “

CERTIFICATE COURSES

Certificates are issued to students who complete the work as outlined:

Group A
Bookkeeping
Com. Arithmetic
Penmanship
Business English

Group B
Shorthand
Typewriting
Business English
Com. Arithmetic

Group C
Bookkeeping
Shorthand
Typewriting
Com. Arithmetic
Business English

ADMISSION TO LAW SCHOOL

We reprint the entrance requirements of the Y. M. C. A. Law School. Students are advised to consult the catalog for further information.

Required	
English	4 units
Algebra	1 unit
French or Latin	2 units
History	1 unit
Electives (Select any two)	
Physics	1 unit
Chemistry	1 "
Physiology	1 "
Physical Geography	1 "
Plane Geometry	1 "
German	2 units
Economics	1 or $\frac{1}{2}$ units
Ancient History	1 unit
Spanish	1 or 2 units
Mechanical Drawing	1 or $\frac{1}{2}$ units
Bookkeeping	1 unit
Stenography	1 unit

SCHEDULE, WINTER TERM 1914

Algebra 1a	Tues., Thurs.	8.30-9.15
Algebra 1a	Tues., Thurs.	7.00-7.45
Algebra 1c	Tues., Thurs.	7.45-8.30
Algebra 2a	Mon., Fri.	7.45-8.30
Arithmetic Aa	Tues., Thurs.	7.00-7.45
Arithmetic 1a	Tues., Thurs.	7.45-8.30
Bookkeeping	Tues., Thurs.	8.30-10.00
Business Arithmetic	Tues., Thurs.	7.00-7.45
Business English	Mon., Fri.	7.00-7.45
Chemistry 1a	Tues., Thurs.	7.00-8.30
Civil Service	Mon., Fri.	7.00-10.00
Economics	Tues., Thurs.	7.45-8.30
English Aa	Tues., Thurs.	8.30-9.15
English 1a	Tues., Thurs.	8.30-9.15
English 1a	Tues., Thurs.	9.15-10.00
English 2a	Tues., Thurs.	7.45-8.30
English 3a	Tues., Thurs.	9.15-10.00
English 4a	Tues., Thurs.	7.00-7.45
French 1a	Tues., Thurs.	7.00-7.45
French 2a	Tues., Thurs.	7.45-8.30
*French 3a	Mon., Fri.	7.45-8.30
Geometry 1a	Mon., Fri.	7.45-8.30
*Geometry 2a	Mon., Fri.	7.00-8.30
German 1a	Tues., Thurs.	9.15-10.00
German 2a	Mon., Fri.	9.15-10.00
Government	Tues., Thurs.	8.30-9.15
History 1a, U. S.	Tues., Thurs.	9.15-10.00
History 2a, U. S.	Tues., Thurs.	8.30-9.15
History 4a, Greek	Tues., Thurs.	7.45-8.30
Latin 1a	Tues., Thurs.	8.30-9.15
Latin 1a	Tues., Thurs.	7.00-7.45
Latin 2a	Mon., Fri.	8.30-9.15
*Latin 3a	Mon., Fri.	7.00-7.45
Penmanship	Tues., Thurs.,	7.45-8.30
Physics	Tues., Thurs.	8.30-10.00
Shorthand	Mon., Fri.	7.45-8.55
Shorthand	Mon., Fri.	8.55-10.00
Spanish 1a	Tues., Thurs.	7.00-7.45
Spanish 2a	Tues., Thurs.	7.45-8.30
*Spanish 3a	Tues., Thurs.	8.30-9.15
Typewriting	Mon., Fri.	7.45-8.55
Typewriting	Mon., Fri.	8.55-10.00

The subletter *a* means first half of course and subletter *b* means second half.

*Starred courses organized when called for by sufficient numbers.

COURSES FOR 1914-1915

WINTER 1914 ¹	SPRING 1915 ² Second Half	SUMMER 1915 ³
Algebra 1a	Algebra 1b	Algebra 1a, 1b
Arithmetic 1a	Arithmetic 1b	Arithmetic 1a, 1b
Chemistry 1a	Chemistry 1b	Algebra II
Civil Service	Civil Service	Civil Service
English Aa	English Ab	Chemistry 1a, 1b
English 1a	English 1b	English Aa, Ab
English 2a	English 2b	English 1a, 1b
English 3a	English 3b	English 2a
English 4a	English 4b	English 3a
		English 4a
English 6a		English 5a, 5b
French 1a	French 1b	English 6a
French 2a	French 2b	French 1a, 1b
French 3a	French 3b	French 2a
Plane Geometry 1a	Plane Geometry 1b	Solid Geometry
German 1a	German 1b	Plane Geometry 1a, 1b
German 2a	German 2b	German 1a, 1b
U. S. History 2a	U. S. History 2b	German 2a
U. S. History 1a	Geography 1a	U. S. History 2a, 2b
Latin 1a	Latin 1b	U. S. History 1a
Latin 2a	Latin 2b	Latin 1a, 1b
Latin 3a	Latin 3b	Latin 2a
Spanish 1a	Spanish 1b	Economics
Spanish 2a	Spanish 2a	Physiology
Physics 1a	Physics 1b	Physical Geography
Greek History	Roman History	Physics 1a, 1b
		Commercial Geography
		Spanish 1a, 1b
		Spanish 2a
		Roman History
		Greek History

BEGINNING COURSES

Organized February 1st

Algebra 1a
Arithmetic 1a
Civil Service
English Aa
English 1a
French 1a
Plane Geometry 1a
German 1a
Geography 1a
Latin 1a
Spanish 1a

¹ The second half of the winter term courses will meet on the same evenings and the same hours during the Spring Term as the first half.

² All new courses for the Spring Term will be given Monday and Wednesday evenings. The exact schedule will be announced later.

³ Schedule for Summer Term will be announced later.

Civil Service

The United States Government offers to the ambitious young man many advantages over private employment. It pays better salaries than do private employers for the same class of work. No day is missed and pay day is never delayed. Promotion is rapid, depending, of course, upon the individual however, ability to advance is not checked in any way. The hours of labor are short, seven and eight hours being the general rule, and vacation allowances are liberal, 30 days being given in some branches of the service, and, in addition, 30 days' sick leave, if needed. Again, employees are perfectly safe and secure in their positions. Permanency is assured during good behavior and efficient service. The rules strictly forbid removal except for good cause, which must be stated in writing. Another advantage is the opportunity for advancement in commercial life. By using the spare time which a Civil Service position gives, one may prepare for better things either in other departments of the Government or outside of the service. No young man need deprive himself of a position which will relieve him from worry as to the security of it, and which, at the same time will give him ample opportunity for recreation and self-improvement.

Civil Service Law

In 1883, a law, known as the Civil Service Reform Act, was passed by Congress. This law was enacted for the following purposes: (1) to procure, by means of competitive examinations, competent employees for the Government service; (2) to place Government positions beyond the control of politicians, thus making appointment depend upon fitness and not upon party affiliations; and (3) to give all an equal opportunity to attain government employment and to keep their positions so long as they show themselves faithful and capable.

The law provides for three commissioners who, with their assistants, give the examinations, correct the papers, and see that the Civil Service rules are fully complied with. These men do not have, however, any power of appointment or removal, they simply certify those eligible for positions.

The many advantages of the law, therefore, make service under the Government of the United States very desirable. Success depends upon personal merit, political "pull" and personal influence no longer being able to help the applicant. All

that is necessary is to pass the examination in order to be placed on the eligible register. If an average of 70% or more is attained in the examination, (65% or more for persons honorably discharged from the United States Military or Naval Service for disability incurred in the time of duty), the applicant becomes eligible for appointment. The higher he is marked, the more quickly will the applicant's appointment follow. The names of the three persons standing highest on the register are certified by the Commission when a vacancy occurs and the appointing officer is required to make a selection of these, with sole reference to fitness. The two remaining names are returned to the register and, together with the fourth on the list, are certified for the next vacancy.

Positions

The positions which the Government must fill under the Civil Service Law cover a broad field. Some of these are positions in the Railway Mail Service, the Post Office Service, the Rural Free Delivery Service, the position of fourth-class postmaster in all states, the Internal Revenue Service, Departmental Service, the Life Saving Service, the Steamboat Service, Immigrant Service, etc.

The age limits and entrance salaries of some of these positions are as follows:

	Age Limits	Entrance Salary
Post Office Service	17 to 55	\$600 to \$3000
Custom House Service	18 upward	\$600 to \$1950
Railway Mail Service	18 to 35	\$900
Internal Revenue	18 upward	\$500 to \$2500
Immigration Service	20 to 55	\$1380

Examinations

The examinations given by the Commission are of three grades or degrees of difficulty, known as first, second and third grades. The first grade is the most difficult and the third grade the least difficult. Most of them are designed to test general qualifications; thus a wide range of positions can be filled from a single kind of examination, increasing the applicant's opportunities for appointment. The subjects which cover the three grades given are **spelling, arithmetic, penmanship, geography, civil government, letter writing, copying and correcting manuscript, copying from plain copy, copying addresses, reading addresses, etc.**

The different subjects in each examination are given relative weights according to their importance. These weights represent the value of each subject in the whole examination. In order to make clear how the average grade is found in all examinations when the subjects are given different weights the following illustration of a railway mail clerk examination will suffice:

Railway Mail Clerk

	Relative Weights	Grades	Products
Spelling (first grade)	10	x 95	= 950
Arithmetic	20	x 80	= 1600
Letter Writing (first grade)	20	x 90	= 1800
Penmanship	20	x 92	= 1840
Copying from Plain Copy	20	x 86	= 1720
Geography of the United States	10	x 94	= 940
Total	100		8850

$8850 \div 100 = 88.5$, average grade.

To the young man who has his evenings to himself and who has not decided what he would like to be, our course in Civil Service is open. He can devote his spare time to profitable study without interfering with his regular occupation. In this way he is qualifying for more lucrative and congenial employment. It may be that Civil Service will be used as a stepping stone to positions outside the service.

To obtain one of the many desirable positions with the Government the very best instruction is desirable. The point is not merely to pass the examination but to rank among the highest. We are able to give proper and thorough coaching whereby the earnest student can take his examination with assurance. This is due to obtaining experienced men who have an intimate knowledge of the examinations, and are qualified to give thorough instruction. Furthermore, the personal direction by the instructor is most important to the student. Trying to prepare for an examination without skilled help is a waste of time, for the student does not know what to study.

Our course begins September 22 and continues to February. New courses begin February 1 and June 1st.

The rate of tuition is \$15.00 per term.

Business School

The Huntington Business School is part of an extensive system of schools operated by the Department of Education of the Boston Young Men's Christian Association. The system includes the Business School, the Preparatory School, the Technical School, the Co-operative Engineering School, the Polytechnic School, the Automobile School, the Law School, and the School of Commerce and Finance. Because it is a part of such a system, giving instruction to several thousand students each year, it is able to provide for students many advantages not offered by business schools.

The school aims to provide a thorough training for those who expect to enter business pursuits. The usual courses in shorthand and bookkeeping are offered and, in addition, a general course covering the work in both the shorthand and bookkeeping departments and other commercial subjects closely related to business work. There are also a large number of courses of college grade in the School of Commerce and Finance open to students of the Business School. The programme of studies is therefore complete and insures to students a broad training along business lines.

COURSES OF STUDY

Stenographic Course

Bookkeeping Course

General Commercial Course

The various courses are made up in accordance with the requirements of each pupil approved by the principal and include instruction in the following branches:

Bookkeeping as used in all kinds of business, Commercial Law, Stenography (Pitman), Penmanship, Typewriting (touch), Business English, Correspondence, Written and Mental Arithmetic, Rapid Calculation, Spelling, Spanish, French and German.

In addition to the foregoing subjects students who wish to take an extended course may select courses from the large list offered in the Preparatory School. There will be found all the subjects usually offered in a first-class high school. This is a great advantage to students who wish to combine a general course with their special business work to prepare them for the more responsible secretarial or accountancy positions.

SUGGESTED GROUPS

	Stenographic Course	
Business English	Mon., Fri.	7.00-7.45
Shorthand	Mon., Fri.	7.45-8.45
Typewriting	Mon., Fri.	8.45-9.45
	Bookkeeping Course	
Commercial Arithmetic	Tues., Thurs.	7.00-7.45
Penmanship	Tues., Thurs.	7.45-8.45
Bookkeeping	Tues., Thurs.	8.45-10.00

SHORTHAND AND TYPEWRITING

There are few fields which offer so great opportunities with so little outlay as shorthand. The demand for young men stenographers has never been filled, nor is it likely to be filled at present. Our aim is to put out as many first-class stenographers as possible, confident, in so doing, that we are performing a two-fold service. We are supplying a constant demand, and we are starting young men in work that is not only pleasant and profitable in itself, but which can be made a stepping stone to the best positions in the business world. How often we learn that the head stenographer has been promoted to a managerial position. This happens because the stenographer is closer than any other man to the head of the firm. During the period of his employment, the manager or superintendent has been telling him about the business in the most intimate way. If the stenographer has ability, it can readily be seen that he is of necessity in line for promotion.

Not only is there opportunity to secure positions and advance in private business houses, but there are large opportunities in the government service for stenographers of ability. In recent years the government has employed almost exclusively male stenographers. The demand for well-trained men is far in excess of the supply. To substantiate this statement we need only quote extracts from a recently published letter of the U. S. Civil Service Commission:

"For a number of years the supply of male eligibles in stenography and typewriting has been inadequate to meet the demands of the various departments of the Government. Every effort has been made by the Commission to bring this condition of affairs to the notice of the public, both by statements published in the annual reports and other publications of the Commission and by reading notices and reviews in the newspapers.

"The salary usually paid to stenographers and typewriters upon entrance to the Government service ranges from \$720 to \$1200 per annum. Prospects for promotion, however, are excellent, especially in view of the fact that, on account of the nature of their duties, stenographers are more readily able to acquire a knowledge of the work of an office than other clerks."

IMPORTANCE OF BOOKKEEPING

Every young man, whether he intends to enter business as a bookkeeper, or not, should have a knowledge of the principles of bookkeeping. A business or professional man who does not have this knowledge is at the mercy of his employees. He should be able to check up their work and understand the various transactions. It is a fact that 90% of the men who engage in business for themselves fail and at the age of sixty are dependent upon others for a livelihood. Such failures are not caused by lack of industry but because of slipshod business methods. Many men in business figure their profits and losses on scrap paper which reaches the waste basket shortly after a careless estimate has been made. The failures would be lessened if the men had a knowledge of bookkeeping and business methods.

Hon. Chauncey M. Depew says, "A business training is absolutely necessary and the best thing that you can have, whether you come from the common school, from the academy, the seminary, or from the university."

Hon. Lyman J. Gage said, "Thirty-eight years ago I took a business course. That drill, that information, that education, I look back upon and count as of the greatest practical value of any I have ever received."

Considering the short time required to become proficient in bookkeeping, every young man should avail himself of this training. It will give him a means of gaining a foothold in the business world. If he enters business for himself it may mean the difference between failure and success. The young man trained in business methods has one more asset which will aid him to climb the ladder of success.

{THE DEPARTMENTS

Bookkeeping

In teaching bookkeeping we combine theory and practice. This method is necessary if the best results are to be secured. We teach the pupil to make entries, to post, to take a trial balance, to make statements of the condition of the business, and to close an ordinary ledger, before giving him vouchers to handle. From this point on, the work is just as practical as in any office.

Practical instruction is given in the special systems devised for certain classes of business. The science of commission, wholesale and retail, corporation accounts, etc., is thoroughly taught; the latest ideas are applied and the routine of the office strictly observed.

Shorthand

We teach the Ben Pitman system of shorthand, for we have found that no other system offers a wider field of advancement

than does this. The method of instruction is a combination of individual and class. The work of the individual students is corrected and errors noted, thus securing accuracy that can be gained in no other way. Herein lies the success of the student. Where it can be done to advantage, the students are grouped for dictation and practice. In this way we preserve the class stimulus while giving the individual attention necessary to insure thoroughness. Most students are able to complete the theory work in three months. The time spent thereafter is used to get the required speed. The majority of students are able to write rapidly enough at the end of a year in order to hold a position. Those, however, who wish greater speed will have to spend a longer time on the course.

Typewriting

The touch system of typewriting is used since it has been found that greater speed can be obtained and neater work turned out in this way. In this system, the machine is operated without looking at the keys. It is possible, therefore, for the typist to read notes while writing, thus saving time. Accuracy and neatness are indispensable, for the employer bases his estimate of the stenographer's ability upon the correctness and appearance of the typewritten page. Recognizing this fact, the school places emphasis on these qualities.

Commercial Law

Instruction is given in the principles of the law of contracts, negotiable instruments, agency, bailment, partnership, corporations, insurance, real and personal property, etc. The course includes much information on the legality of every-day transactions, which is of great value to the business man. No attempt is made to make lawyers of our pupils, but we aim to give them information that will enable them to carry on business in a business-like manner.

Should students wish to pursue the study of law more extensively, they may enter the Law School of the Department of Education where a complete course in law leading to the LL.B. may be pursued.

Rapid Calculation

In connection with the work in written and mental arithmetic, methods of rapid calculation are taught which greatly facilitate the pupil's work, stimulate his mind, and enable him to compute different problems with ease and rapidity. The daily work is extremely practical. Thorough drills are given, not merely in rapid addition, but in all classes of problems incident to the ordinary business office. Short-cut methods are here introduced, and students are taught to apply them in the regular accounting room.

Penmanship

The ability to write well is of great importance to those who are employed in commercial pursuits. It is indispensable to the bookkeeper or correspondent; no other accomplishment, save typewriting, is of more value to the stenographer. The beautiful flourished style of writing, although valuable as an accomplishment, is not a necessity in business. It is the aim of this department to give the student instruction that will enable him in a short time to write rapidly, neatly, and legibly. Any one, who will take pains to practice the exercises outlined, can acquire a plain business hand while he is pursuing the course in bookkeeping or shorthand.

Spelling

Correct spelling is absolutely essential to the stenographer or bookkeeper. Every student who expects to enter business work is obliged to take the instruction in spelling. The school has demonstrated that even the very poorest spellers can become proficient by close application. No attempt is made to teach students words not generally used. The words are selected from a list compiled by Dr. Ayers of the Sage Foundation who tabulated the common words used in 20,000 business letters.

English

Too much emphasis cannot be placed upon the value of English to both the bookkeeper and the stenographer. Too often pupils are sent into the office with only a superficial knowledge of English grammar and the forms of correspondence. We aim to give our students a thorough training in the elements of composition and a thorough drill in all kinds of correspondence forms. The department is especially strong, and English beyond the ordinary correspondence work is provided for those who wish to take an extended course to prepare for secretarial positions. A systematic attempt is made to increase the vocabulary of students so that they will be familiar with the words in common use and can take dictation more easily.

Commercial Arithmetic

A knowledge of arithmetic is an essential qualification of the bookkeeper. Accuracy is the first demand made upon the student, and thereafter emphasis is placed on rapidity. The essential divisions of the subjects are dwelt upon to give the student a knowledge of the various computations which arise in business. Special attention is given to fractions, decimals, percentage, interest, discount, etc. Mental arithmetic is also given considerable prominence.

Spanish, French, and German

Attention is called to the courses in the modern languages. With the opening of the Panama Canal our trade with foreign countries will be greatly increased. The recent trip of the business men of Boston to South American countries brings to our attention the importance of preparing for the work which is bound to result from the spread of business in that territory. Persons who have a knowledge of Spanish will be in great demand in the near future.

Tuition Rates

The tuition charge for the Preparatory and Business Schools for three subjects is \$18 for a term of 16 weeks, not including membership. A fee of \$3.00 is collected each term for each subject taken above three. Students who enroll for two consecutive terms are charged \$30. for three subjects for the season of 32 weeks. Students are permitted to take any combination of subjects when paying the foregoing rates. All tuition fees are regularly payable in advance.

The rate of tuition for students who select three subjects from the following: Arithmetic, English A, Penmanship, Typewriting and Elementary U. S. History, is \$15 for a term of 16 weeks. When enrollment is made for two consecutive terms, or 32 weeks, the charge is \$23.

The tuition charge for the Civil Service Course is \$15 for the term of 16 weeks.

Students are permitted to pay a fixed rate for each subject when it is more convenient. The following are the rates per subject, when payment is made for one term and for two terms:

	One Term	Two Terms
Practical Arithmetic	\$7	\$10
Elementary U. S. History	7	10
English A	7	10
Penmanship	7	10
Typewriting	7	10
Any other subject regularly catalogued	8	13

A reduction of \$2.00 from the rates as quoted is made for each subject taken after the first subject.

The laboratory fee for Chemistry is \$10. per course (2 terms) and for Physics \$5. per course. A deposit of \$3. is made in chemistry to cover breakage. The unused portion is returned at the close of the course.

Students who discontinue a course but who have attended four or more recitations will be required to pay a term's tuition.

No student is permitted to transfer from one subject to another without consulting the Principal beforehand and receiving a transfer order which must be presented at the Educational Office for the proper ticket. Transfers after the first week are usually not advisable.

The tuition rates as quoted are in addition to the membership charge of \$2.00 per annum. (See page 25).

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HUNTINGTON BUSINESS SCHOOL



1913-1914

1915

THE HUNTINGTON BUSINESS SCHOOL

1914-1915



PUBLISHED BY
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Calendar

1914

- July 1 to Sept. 1. Period of Registration
Sept. 22. School year begins
Oct. 12. Columbus Day
Nov. 26, 27. Thanksgiving Recess
Dec. 18. Close of Fall Term
Dec. 18. Christmas Recess begins

1915

- Jan. 4. Christmas Recess ends
Jan. 4. Winter Term begins
March 19. Close of Winter Term
March 19. Spring Recess begins
March 29. Spring Recess ends
June 15. Commencement Day

Organization

General Administrative Officers

ARTHUR S. JOHNSON, *President*

JACOB P. BATES, *Vice-President*

HAROLD PEABODY, *Recording Secretary*

FRANCIS B. SEARS, *Treasurer*

GEORGE W. MEHAFFEY, *General Secretary*

Educational Committee

JOHN ROUSMANIERE, *Chairman*

WILLIAM E. MURDOCK

ALBERT H. CURTIS

MORGAN L. COOLEY

GEORGE B. HITCHCOCK

Educational Administrative Officers

FRANK P. SPEARE, *Director of Education*

GALEN D. LIGHT, *Asst. Director of Education and Bursar*

H. W. GEROMANOS, *Supt. of Evening School System*

IRA A. FLINNER, *Supt. of Day Schools System*

Faculty

IRA A. FLINNER, A.M.
Principal

WILLIAM L. ESTERBERG
Bookkeeping and Shorthand

CHARLES R. HOSMER, A.B.
Business English and Penmanship

WILLIAM S. SPENCER, A.B., A.M.
English and Industrial History

JAMES H. WORMAN, A.M., PH.D.
French, German, Spanish

CHARLES H. SAMPSON, S.B.
Show Card Writing

JAMES BROUGH
Commercial Illustrating

RALPH G. WHITE, A.M.
Supervisor of Study

GEORGE SEXTON
Athletic Coach

Introduction

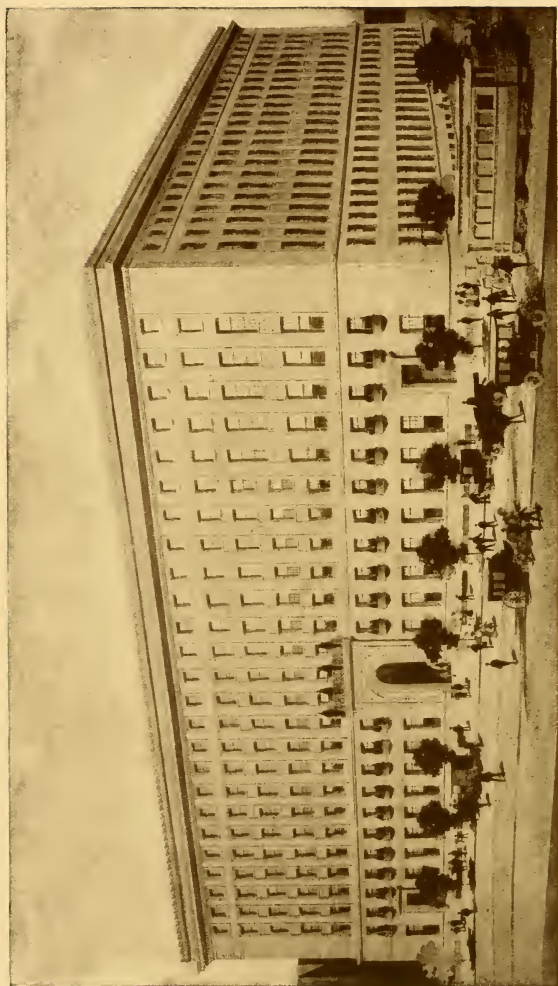
The Huntington Business School is part of an extensive system of schools operated by the Department of Education of the Boston Young Men's Christian Association. The system includes the Business School, the Preparatory School, the Technical School, the Co-operative Engineering School, the Polytechnic School, the Automobile School, the Law School, and the School of Commerce and Finance. Because it is a part of such a system, giving instruction to several thousand students each year, it is able to provide for students many advantages not offered by business schools.

Notwithstanding the many difficulties which the School has encountered because of having occupied three different buildings at different locations since the School opened in 1909, there has been a steady growth. The school will open the fifth year September 16, 1913 in its new and permanent quarters on Huntington Avenue. The buildings and equipment are second to none in America and the prospect for continued growth and usefulness is exceedingly bright.

The school aims to provide a thorough training for those who expect to enter business pursuits. The usual courses in shorthand and bookkeeping are offered and in addition a general course covering the work in both the shorthand and bookkeeping departments and other commercial subjects closely related to business work. There are also a large number of courses of college grade in the School of Commerce and Finance open to students of the Business School. The programme of studies is therefore complete and insures to students a broad training along business lines.

BUILDINGS

The location, surroundings and physical appointments of a school are of primary importance. The location ought to be healthful, accessible and attractive. Its buildings ought to be properly heated, lighted and ventilated and above all conducive to the health and progress of students at all seasons of the year.



NEW BUILDING

The buildings occupied by the Huntington Business School combine all these good qualities. They are located on Huntington Avenue in the section of Boston noted for its institutions of learning; accessible from all parts of the city and suburbs and free from the outside influences which distract the attention of students. Nearly four acres of land are devoted to buildings and athletic field.

On looking at the buildings from the front one gains the impression of a large square structure, 240x200x90, but this is not the case. There are in reality six buildings, each on its own foundation, and with the exception of the front and west side which are 90 feet high and 58 feet deep, the buildings are comparatively low, connected by corridors and bridges. This arrangement gives exceptionally fine light and air to all the buildings.

The six buildings are as follows: Administration, Assembly Hall, Educational, Natatorium, Gymnasium and Vocational.

Administration Building

Located in the Administration Building are the lobby, various offices of the administrative staff, the directors' room committee rooms, libraries, reading and social rooms. This will be the social center of the plant.

Assembly Hall

The Assembly Hall has a seating capacity of nearly 500. A large stage, suitable for entertainments of all kinds is provided. The Chapel exercises and lectures of the school are held here.

Educational Building

This building is 196 feet long by 58 feet wide and six stories high. In the basement are located the heating and ventilating system of the entire plant, shops and laboratories. The first floor is taken up with game, social and club rooms, and a small assembly hall. On the second, third and fourth are located class rooms, drafting rooms and laboratories. The fifth and sixth floors are used as dormitories.

Natatorium

This building is located between the Assembly Hall and the Gymnasium and is easily accessible from the locker rooms of the latter. The swimming pool is 75 feet long by 25 feet wide and is under a glass roof admitting floods of light and sunshine. The pool is supplied with filtered water from our own artisan well and heated to the proper temperature by an elaborate system of pipes. Altogether the Natatorium is one of the largest and best equipped of its kind.

Gymnasium

This structure is known as the Samuel Johnson Memorial Gymnasium, the funds for which were provided by relatives and friends of the late Samuel Johnson. On the main floor is the gymnasium proper which is well equipped with the most approved apparatus. In the building are handball and squash courts, lockers, six bowling alleys, shower baths, rooms for special exercising, fencing, wrestling, etc., and a running track above which is a visitors' gallery. The gymnasium is so arranged that by a system of sliding partitions it can be divided into one, two or three separate compartments, making it possible to conduct a number of activities at the same time. Many new features in gymnasium construction and equipment have been introduced.

Vocational Building

The vocational building is located directly back of the main group. This is a substantial structure of three stories, 150x58, in which are located the woodworking plant, the electrical laboratories, machine shop and lecture halls.

General Information

Only physically normal boys of good moral character are admitted. The discipline is not adapted to boys who require severe restrictions.

Pupils who have completed the grammar school course or have an equivalent training will be admitted to any of the courses in the School. Pupils who are not prepared to pursue the regular work may make up deficiencies in the Preparatory School.

This is distinctly a boys' school and students have every opportunity to attend strictly to the work as outlined. None of the distractions common to co-educational schools are found here.

The hours of attendance are from 9:00 a. m. to 2:30 p. m. A recess of thirty minutes gives the students an opportunity to eat a light luncheon. Students may remain after 2:30 to receive special help on their lessons or may be required to remain after 2:30 to make up back work.

Students are not permitted to leave the building without permission except at lunch time.

Reports of the progress of students are mailed to parents every Monday. These reports are gathered with great care from the teachers and are the chief means of communication between the School and parents.

Good health is essential to success in business. Students are required to take regular exercise in our gymnasium and swimming pool. Provision is made for both out-of-door and in-door sports. Among these is baseball, track athletics, football, basket ball, swimming, hockey, tennis and handball. All of these exercises are under the direction of the physical director and his assistants. It has been found advisable to provide for the physical well being of our students. Business duties are so exacting that only those who have strong physiques can meet the requirements.

A systematic course of lectures is provided. Business men of experience give talks on various phases of business life. These lectures are enjoyed by every one and the training received is very profitable for it brings the student closely in touch with actual business conditions.

An orchestra and glee club give ample opportunity for those musically inclined to spend their leisure profitably. These organizations are under the leadership of specialists and during the year they combine to give entertainments.

Opportunity is given for social activities. Various functions are held during the school year at which time the students of the various departments meet. At the close of the school year, the annual field day is held at Riverside Recreation Park.

The business office of the School is open every week day from 9:00 a. m. to 10 p. m. during the entire year. Information is gladly given and appointments arranged with the principal.

Students who live in suburban towns can secure railroad tickets at greatly reduced rates by applying at the office of the railroad.

Students from a distance may secure rooms in the dormitory of the building. Here are accommodations for three hundred in nicely furnished rooms equipped with every modern convenience.

Those who do not wish to pursue any of the regular courses but wish to take up special work along certain definite lines will be accommodated. Full information will be given upon request.

Several hundred individual courses are available in the Department of Education.

It should be borne in mind that the tuition rate is low. This does not mean that the instruction given is not of the very best. We are able to offer these courses at reasonable rates because unlike other business schools, the school does not have to pay dividends and because it has been so liberally endowed with buildings and equipment.

Applicants are admitted at any time but are urged to enroll at the beginning of the year.

The pupil's time belongs to the school and is at the disposal of the teacher in the same way as it would be at the command of an employer if engaged in business.

The school year begins September 16th and continues until June 12 observing the usual holidays.

Text books and supplies are included in the tuition rate.

Students of the business school are advised to consult the catalogues of the Evening Law School and the School of Commerce and Finance. These schools give courses leading to degrees and are attended by nearly 800 young men who are employed during the day.

The school assists its graduates to secure positions. No charge is made for this service.

The catalogues of the Preparatory and the Technical schools give information of interest to business students who wish to pursue additional courses.

Value of Business Training

The intrinsic value of a knowledge of business methods, not only in mercantile pursuits but in every calling and profession is generally recognized. It is well understood that this knowledge covers a wide range of ability. It is the result of such instruction and training as enables inexperienced young people to act intelligently in the daily transactions of life, and to have a proper understanding of business affairs. The Huntington Business School prepares its graduates for the duties of business life, for the work of the store, the office, the accounting room, as completely and in the same proportion as the law, medical or technical schools prepare their students for the vocations which they intend to follow.

At no time has there been a greater demand for skilled workers in business pursuits. Competition is so keen to-day that business men must keep the closest account of business transactions. It becomes necessary, therefore, to employ a large number of bookkeepers, accountants and stenographers.

There is no course of study which can be pursued by the boy who has completed a grammar school education which will bring such large returns in so short a time as a training along commercial lines. The high school graduate who has pursued a general course must reply to the employer's question, "What can you do?" that he is a high school graduate and thinks he can do odds and ends in a business office. The high school graduate may have pursued a longer course, but he has not prepared himself for any definite work. The boy who can write shorthand or keep a set of books can walk boldly into a business office and state without any misgivings what he can do.

Business training can be secured in a short time and the possessor is assured a living wage from the very beginning of his business career. The boy who is proficient in some branch of business training can earn from \$500 to \$800 to begin with. The boy with merely a general training is obliged to take a position paying \$200 and \$400 a year. Even at that low wage he has difficulty in securing a place. Business men want boys

who can do one thing well. Competition is keen and only skilled workers can be used.

Then again, the skilled employee has far better opportunities to be promoted. One object in education is advancement. This comes only to him who is trained in the work he is doing and can do, or adapt himself easily to the work in the position in advance of him. The trained bookkeeper will soon be promoted to an accountancyship and thence to managerial work. The stenographer like no other one in a business firm is peculiarly situated. He can, because of his training, and because of his contact with the heads of the house and his knowledge of the business of the firm, hope to be promoted to a position of responsibility.

Courses of Study

Stenographic Course

Bookkeeping Course

General Commercial Course

Special Short Course

The various courses are made up in accordance with the requirements of each pupil approved by the principal and include instruction in the following branches.

Bookkeeping as used in all kinds of business, Commercial Law, Stenography (Pitman), Penmanship, Typewriting (touch), Commercial Geography, Industrial History, English Grammar and Composition, Correspondence, Written and Mental Arithmetic, Rapid Calculation, Filing and Cataloging, Spelling, Spanish, French, and German.

In addition to the foregoing, students who wish to take an extended course may select courses from the large list offered in the Preparatory School. There will be found all the subjects usually offered in a first-class high school. This is a great advantage to students who wish to combine a general course with their special business work to prepare them for the more responsible secretarial or accountancy positions.

Shorthand and Typewriting

There are few fields which offer so great opportunities with so little outlay as shorthand. The demand for young men stenographers has never been filled, nor is it likely to be filled at present. Our aim is to put out as many first-class stenographers as possible, confident, in so doing, that we are performing a two-fold service. We are supplying a constant demand, and we are starting young men in work that is not only pleasant and profitable in itself, but which can be made a stepping stone to the best positions in the business world. How often we learn that the head stenographer has been promoted to a managerial position. This happens because the stenographer is closer than any other man to the head of the firm. During the period of his employment, the manager or superintendent has been telling him about the business in the most intimate way. If the stenographer has ability, it can readily be seen that he is of necessity in line for promotion.

Not only is there opportunity to secure positions and advance therein in private business houses, but there are large opportunities in the government service for stenographers of ability. In recent years the government has employed almost exclusively male stenographers. The demand for well trained men is far in excess of the supply. To substantiate this statement we need only quote extracts from a recently published letter of the U. S. Civil Service Commission:

"For a number of years the supply of male eligibles in stenography and typewriting has been inadequate to meet the demands of the various departments of the Government. Every effort has been made by the Commission to bring this condition of affairs to the notice of the public, both by statements published in the annual reports and other publications of the Commission and by reading notices and reviews in the newspapers."

"The salary usually paid to stenographers and typewriters upon entrance to the Government service ranges from \$720 to \$1200 per annum. Prospects for promotion, however, are excellent, especially in view of the fact that, on account of the nature of their duties stenographers are more readily able to acquire a knowledge of the work of an office than other clerks."

Importance of Bookkeeping

Every young man no matter whether he intends to enter business as a bookkeeper or not should have a knowledge of the principles of bookkeeping. A business or professional man who does not have this knowledge is at the mercy of his employees. He should be able to check up their work and understand the various transactions. It is a fact that 90% of the men who engage in business for themselves fail and at the age of sixty are dependent upon others for a livelihood. Such failures are not caused by lack of industry but because of slipshod business methods. Many men in business figure their profits and losses on scrap paper which finds the waste basket shortly after a careless estimate has been made. These failures would be lessened if the men in business had a knowledge of bookkeeping and business methods.

Hon. Chauncey M. Depew says, "A business training is absolutely necessary and the best thing that you can have, whether you come from the common school, from the academy, the seminary, or from the university."

Hon. Lyman J. Gage said, "Thirty-eight years ago I took a business course. That drill, that information, that education, I look back upon and count as of the greatest practical value of any I have ever received."

Considering the short time that is required to become proficient in Bookkeeping, every young man should avail himself of this training. It will give him a means of gaining a foothold in the business world, and if he enters business for himself it may mean the difference between failure and success. The young man trained in business methods has one more asset which will aid him to climb the ladder of success.

Going to College

There are a large number of young men who wish to continue their education beyond the high school but do not have the means to spend four years in a college or university. To such we wish to state that it is entirely possible to go to college and pay your own way if you have some special training that will enable you to earn money. At Harvard University there are over 1500 students who earn a part of their expenses. Many of these students are obliged to work at whatever kind of employment they can get, such as waiting on table, addressing envelopes, doing the routine work of an office, clerking in stores, etc. Such work brings only a small return—twenty-five cents an hour. There is, however, an opportunity at Harvard and the other large universities for young men who have a knowledge of shorthand or bookkeeping to earn enough money to pay full expenses after the first year. There is a great demand for the young man who can take lecture notes and transcribe them on the typewriter. Such work brings from fifty cents to one dollar fifty cents an hour. The principal is familiar with the conditions in a number of the large universities and is personally acquainted with students who have completed a college course and paid all expenses from the returns secured through shorthand and typewriting. Then, too, students who have a business training have greater opportunities for making money during the summer months, a time when there is a great demand for trained men owing to the fact that the regular workers take vacations.

It should be borne in mind that a knowledge of typewriting and shorthand is an asset for any college student, even though he is fortunate enough to pay his way without working. The student who is able to take his lecture notes in shorthand has a great advantage and the ability to write his theses on the typewriter is an asset that is not fully appreciated unless one has completed a college course.

The Departments

BOOKKEEPING

In teaching bookkeeping we combine theory and practice. These subjects must of necessity go hand in hand if the best results are to be secured. We teach the pupil to make entries, post, take a trial balance, make statements of the condition of the business and close an ordinary ledger, before giving him vouchers to handle. From this point on, the work is just as practical as in any office.

Practical instruction is given in the special systems devised for certain classes of business. The science of commission, wholesale and retail, corporation accounts, etc., is thoroughly taught; the latest ideas are applied and the routine of the office strictly observed.

The instruction does not close with a knowledge of bookkeeping. Students of ability are taken into the more advanced work in the second and third years of their course. Should students wish to enter business after completing the elementary work, they may do so and take up in the School of Commerce and Finance during the late afternoons and evenings, the work of this school. (See catalogue of School of Commerce and Finance.)

SHORTHAND

We teach the Ben Pitman system of shorthand as we have found that no system offers a wider field of advancement than does this. The method of instruction is a combination of individual and class. The work of the individual students is corrected and errors noted, thus securing accuracy that can be gained in no other way. Herein lies the success of the student. Where it can be done to advantage, the students are grouped for dictation and practice. In this way we preserve the class stimulus while giving the individual attention necessary to insure thoroughness. Most students are able to complete the theory work in three months. The time spent thereafter is used to get the required speed. The majority of students are able to

write sufficiently rapidly at the end of a year to hold a position. Those, however, who wish greater speed will have to spend a longer time on the course.

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Should students wish to pursue the study of law more extensively they may enter the Law School of the Department of Education where a complete course in law leading to the LL.B. may be pursued.

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COMMERCIAL ARITHMETIC

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student, and thereafter emphasis is laid on rapidity. The essential division of the subjects are dwelt upon to give the student a knowledge of the various computations which arise in business. Special attention is given to fractions, decimals, percentage, interest, discount, etc. Mental arithmetic is also given considerable prominence.

SPANISH, FRENCH AND GERMAN

Attention is called to the courses in the modern languages. With the opening of the Panama Canal our trade with foreign countries will be greatly increased. The recent trip of the business men of Boston to South American countries brings to our attention the importance of preparing for the work which is bound to result from the spread of business in that territory. Persons who have a knowledge of Spanish will be in great demand in the near future.

Financial

Day Department

The tuition fee is \$150 for the year, payable \$90 when entering and \$60 the first of February. When the tuition is paid in two instalments it includes instruction, privileges of the gymnasium, and membership in the Association.

The tuition rate by the month is \$16 payable in advance. The tuition when so paid, includes instruction only.

A registration fee of \$5 is due from all new students when a place is reserved in the school. It is collected only once during a student's connection with the school. It is not a part of the tuition and when once paid it will not be refunded.

Should it be necessary in the opinion of the faculty for a student to discontinue his work a refund of tuition is made at the rate of one-half of the amount charged per month for the unexpired period for which payment has been made. When a student is obliged to miss school because of illness, a refund of one-half of the amount charged per month is made for such absence after the first two weeks.

Provision is made for students who wish to pursue a partial course. Rates will be quoted upon application.

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THE HUNTINGTON SCHOOL FOR BOYS

1914-1915

TECHNICAL DEPARTMENT

PUBLISHED BY
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
1914

Calendar

1914

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Sept. 22. School year begins
Oct. 12. Columbus Day
Nov. 26, 27. Thanksgiving Recess
Dec. 18. Close of Fall Term
Dec. 18. Christmas Recess begins

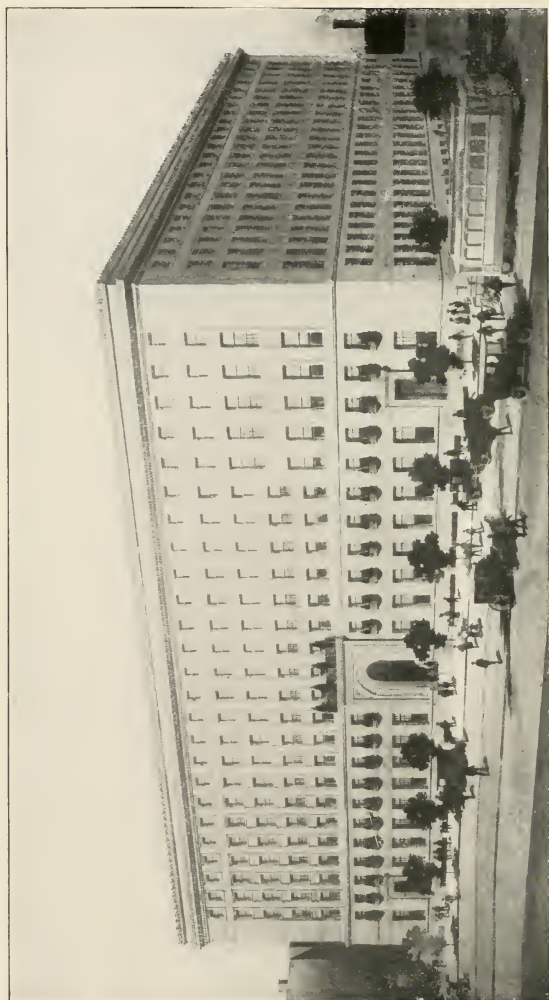
1915

- Jan. 4. Christmas Recess ends
Jan. 4. Winter Term begins
March 19. Close of Winter Term
March 19. Spring Recess begins
March 29. Spring Recess ends
June 15. Commencement Day

FRANK P. SPEARE, M.H., Director

IRA A. FLINNER, A.B., Headmaster

CHARLES H. SAMPSON, S.B., Head of Technical Department



MAIN BUILDING

Technical Department

FOREWORD

THE growth and development of engineering and scientific industries has resulted in the creation of a field of service that makes a strong appeal to young men possessing natural mechanical and scientific ability. Those wishing to follow a calling of this sort must bring themselves to realize, however, that technical training is necessary if they anticipate advancement into responsible positions of a mechanical nature.

The Huntington Technical Department offers to worthy and ambitious young men the opportunity to obtain, at a reasonable cost, instruction along technical lines. All the courses are practical and complete, and are planned with the fixed purpose of preparing one to fill technical positions intelligently.

Grammar school graduates and others giving satisfactory proof of the equivalent of a grammar school training are eligible for admittance. Good character, good health, and a genuine interest in the subjects to be pursued are necessary for the best success in the work. It is assumed that applicants for admission shall possess these qualifications.

TUITION

The rate of tuition is given as a separate item under the description of each course.

REGISTRATION FEE

A registration fee of five dollars (\$5.00), due when final arrangements are made to enter the school, is required of all students who register in courses listed at \$125, or more a year. The fee is collected only once during a student's connection with the school. After it is once paid, it will not be refunded. Students are expected to register before September 1.



PHYSICS LECTURE ROOM



PHYSICS LABORATORY

TECHNICAL COURSE

The Technical Course of the Huntington School makes a strong appeal to the grammar school graduate and the student who, having attended high school one or two years has no prospect of attending an institution of college grade. The course aims to prepare students for positions as draftsmen, engineers' assistants, and positions in places connected with designing, manufacture, and construction of machinery.

This is not in any sense of the word a "trade" course, but includes all the applied work of a high school course and much that is given in the first two years of a technical school of college grade.

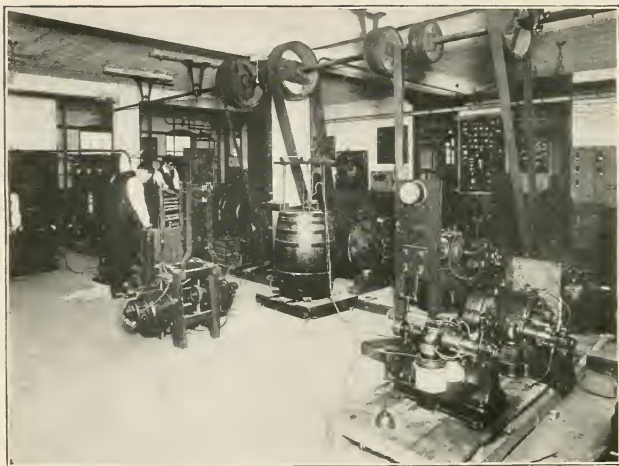
The work covered during the three years is given below:

<i>First Year</i>		<i>Second Year</i>	
Algebra I	5 hrs.	Algebra II	5 hrs.
English I	5 "	English II.	5 "
Arithmetic	3 "	Plane Geometry	5 "
Elementary Science	2 "	Industrial History	3 "
Freehand Drawing	2-1 "	Drafting	6-3 "
Drafting	8-4 "	Pattern Making	4-2 "
Woodworking	4-2 "		
<hr/>		<hr/>	
Total	22 hrs.	Total	23 hrs.
 <i>Third Year</i>			
Applied Mathematics	5 hrs.		
English III	3 "		
Mechanics	3 "		
Materials	2 "		
Drafting	6-3 "		
Physics	5 "		
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Total	21 hrs.		

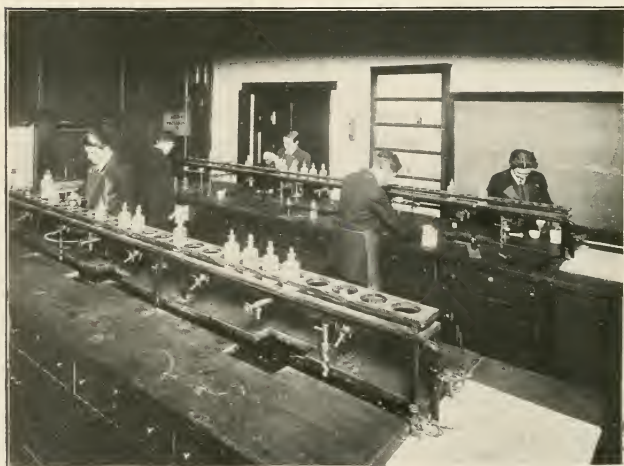
The tuition is \$175 a year, \$100 payable at the opening of school and \$75 on or before February 1.

ELECTRICAL COURSE

The Electrical course of the Huntington School appeals to the Grammar school graduate who does not expect to enter college. The course is planned with the idea of giving the student, in addition to instruction in Electricity, such subjects that are closely related and are valuable in laying a broad foundation. Graduates have no difficulty in filling such posi-



CORNER OF ELECTRICAL LABORATORY



CHEMISTRY LABORATORY
(One of Three)

tions as draftsmen, engineers' assistants, switchboard operators, testers, and similar positions demanding a knowledge of the principles of electricity.

The following schedule is adhered to:

<i>First Year</i>		<i>Second Year</i>	
Algebra I	5 hrs.	Algebra II	5 hrs.
English I	5 "	English II	5 "
Arithmetic	3 "	Plane Geometry	5 "
Elementary Science	2 "	Electricity	3 "
Electricity	3 "	Drafting	4-2 "
Drafting	6-3 "	Electrical Laboratory	4-2 "
Pattern Making	4-2 "		
<hr/>		<hr/>	
Total	23 hrs.	Total	22 hrs.
<i>Third Year</i>			
Applied Mathematics	5 hrs.		
English III	5 "		
Physics	5 "		
Electricity	3 "		
Drafting	4-2 "		
Mechanics	3 "		
Materials	2 "		
<hr/>		<hr/>	
Total	25 hrs.		

The tuition rate is \$175 a year, \$100 payable at the beginning of first term and \$75 on or before February 1.

ARCHITECTURAL COURSE

The study of architecture involves not only a knowledge of scientific principles but also requires a thorough artistic training. The course in architecture as outlined below covers in a most complete way the general requirements of the profession. A large amount of time is devoted to the elements of mechanical drawing; much attention is given to freehand drawing and its practical application; all of the principles of isometric and perspective are thoroughly covered, thus insuring, during the first year, a solid foundation for the actual architectural work to follow.

Among the subjects covered in the drafting part of the course are: Details of Building Construction, Details of Classic Mouldings, the orders of Architecture, Architectural Design, Planning, Building Materials and Specifications, Shading and Rendering in Pen and Ink, Water Color, History of Architecture, and History of Ornament.



FREEHAND DRAWING ROOM



DRAFTING ROOM

Lectures on architectural subjects are given weekly; trips are frequently taken to examine buildings under construction; and considerable time is spent in the Museum of Fine Arts, as a supplement to the work in Design.

An idea of the other subjects covered, in addition to the drawing, may be obtained by an examination of the following schedule:

<i>First Year</i>		<i>Second Year</i>	
Algebra I	5 hrs.	Algebra II	5 hrs.
English I	5 "	English II	5 "
Arithmetic	3 "	Plane Geometry	5 "
Elementary Science	2 "	Industrial History	3 "
Freehand Drawing	4-2 "	Architectural Drafting	6-3 "
Drafting	6-3 "	Freehand Drawing	2-1 "
Woodworking	2-1 "		
<hr/>		<hr/>	
Total	21 hrs.	Total	22 hrs
<i>Third Year</i>			
Applied Mathematics	5 hrs.		
English III	5 "		
Mechanics	3 "		
Materials	2 "		
Architectural Drafting	15-7½ "		
<hr/>		<hr/>	
Total	22½ hrs.		

The tuition rate is \$175 a year, \$100 payable at the beginning of the first term and \$75 on or before February 1.

ONE YEAR TECHNICAL COURSE FOR HIGH SCHOOL GRADUATES

This is an excellent course for the High School graduate who, upon graduation, finds himself fitted for no definite vocation, and for the graduate who had intended to enter college but finds it impossible at the last moment. The course is open only to those who have completed a high school course or its equivalent.

The following subjects are pursued:

Applied Mathematics	5	hours	per week
Mechanics	3	"	"
Materials	2	"	"
Drafting	15	"	"

The work in Applied Mathematics treats of the principles of arithmetic, algebra, plane and solid geometry, trigonometry, and the application of these principles to the solution of prac-



AT THE BENCHES



WOOD TURNING SHOP

tical problems. A feature of the work is the use of the slide rule in the calculations.

The study of Mechanics covers, as pursued here, the following branches of the subject: concurrent forces, parallel forces, center of gravity, motion, inertia, and rotation. It is a most interesting, practical, and valuable course.

The course in Materials consists of the compilation of a hand book of data which is useful to one entering engineering work.

In the course in Drafting, all essentials are thoroughly covered. The course is extensive and conducted, as nearly as possible, along practical lines. Students completing this course have invariably "made good" in positions taken.

The tuition rate is \$125 for the course, \$75 payable at the beginning of the first term and \$50 on or before February 1.

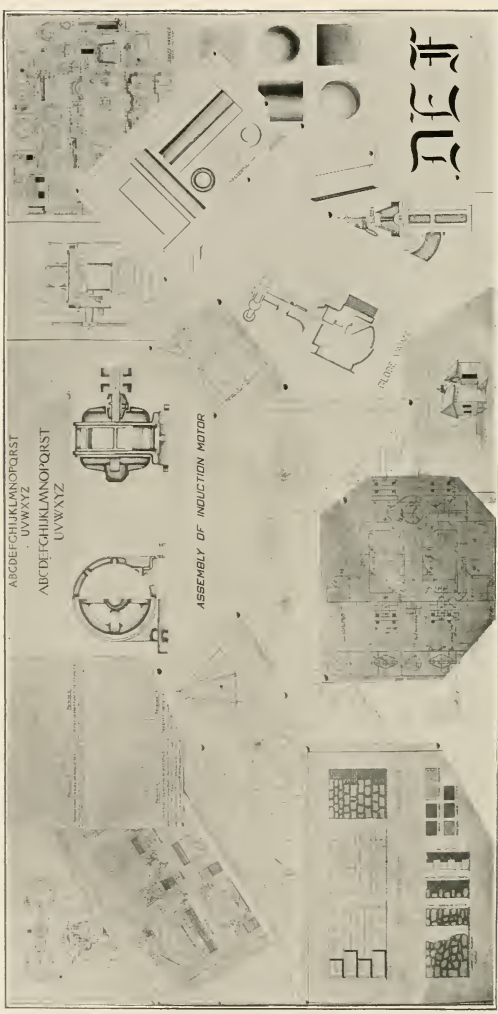
ARCHITECTURAL DRAFTING COURSE

This is a course of two years' duration which has for its purpose the fitting of young men to become proficient architectural draftsmen. Applicants for the course should possess, in order to insure the best success, a working knowledge of the principles of arithmetic, elementary algebra, and plane geometry. The knowledge of geometrical construction is especially important.

The course, covering about one hundred plates, treats, in a most complete manner, the following subjects:

- Lettering
- Orthographic Projection
- Development and Intersection of Surfaces
- Freehand Drawing
- Tracing
- Blueprinting
- Details of Building Construction
- Details of Classic Mouldings
- The Orders of Architecture
- Architectural Design
- Planning
- Building Materials and Specifications
- Shading and Rendering in Pen and Ink
- Water Color
- History of Architecture
- History of Ornament

The tuition rate is \$75 a year, \$40 payable at the beginning of the first term and \$35 on or before February 1.



ABCDEF GHIJ KLMN OPQRST
UVW XYZ
ABCDEF GHIJ KLMN OPQRST
UVW XYZ

ASSEMBLY OF INDUCTION MOTOR

STATOR
ROTOR
END BELL

MACHINE DRAFTING COURSE

This course in Machine Drafting, extending over one year, is designed for those who desire to fit themselves to occupy positions as draftsmen; for those who wish to obtain a knowledge of the subject for the purpose of reading blue prints; for those who contemplate becoming teachers of the subject; and for those who find a knowledge of drafting a necessary or valuable asset in the work in which they are engaged.

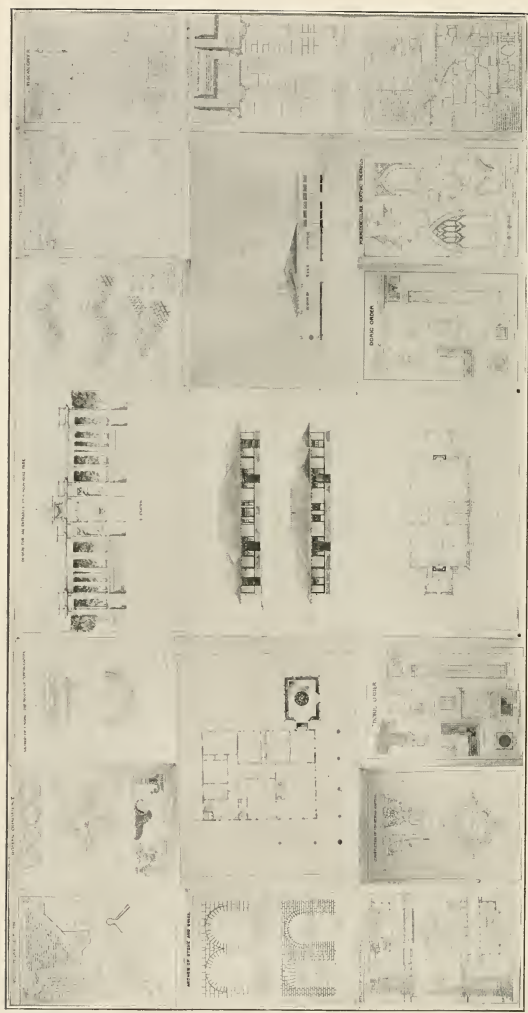
The instruction covers in a very complete manner all the fundamentals, such as lettering, orthographic projection, developments, and intersections of surfaces. Details of machine parts and assembly drawings are made in sufficient number to insure a proper understanding of methods in common use. A large amount of time is given to sketching machines and to making assembly drawings from the sketches. Many drawings are inked and traced. Everything is completed in a manner, as nearly as possible, like that required by the demands of actual drafting room practice. In addition to the regular course, considerable instruction is given on isometric projection, perspective, and elementary machine design.

The tuition rate is \$75 for the course, \$40 payable at the beginning of the first term, and \$35 on or before February 1.

VOCATION AND PLACEMENT DEPARTMENT

It is a fact that very little assistance is ordinarily given in aiding boys and young men to select vocations suited to their requirements. They are permitted to grope about, trying this kind of work and that, until at last they settle upon some line which may or may not be adapted to them. Such hit-or-miss methods often end in their entering the so-called blind-alley occupations. This happens frequently because the immediate returns are usually greater than those from callings which require a liberal training, and in which one can, after several years, rise to a good position.

Every effort is made by the school to assist the boy to an intelligent selection of a life's work. He is studied in his school work and advised from time to time wherein his greatest possi-



bilities lie. By close co-operation with parents, friends, and former employers, sufficient information is secured to assist him, materially.

Not only do we advise students as to the vocations in which they can be most successful but, after a boy has completed a course, we assist him in getting a position in the field in which his interests lie. We do not guarantee to place every boy, but we do agree to place every one who has made good progress in his work and will be a credit to the school, and will prove satisfactory to his employer. We co-operate very closely with business and industrial firms and learn of possible vacancies, months in advance. Our trouble, heretofore, has been to secure properly trained boys, to place in the many positions we are requested to fill.

No charge is made for securing positions for our students.

THE
HUNTINGTON
SCHOOL



1914

1915

THE HUNTINGTON SCHOOL FOR BOYS

1914-1915

PUBLISHED BY
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
1914

Calendar

1914

- July 1 to Sept. 1. Period of Registration
- Sept. 22. School year begins
- Oct. 12. Columbus Day
- Nov. 26, 27. Thanksgiving Recess
- Dec. 18. Close of Fall Term
- Dec. 18. Christmas Recess begins

1915

- Jan. 4. Christmas Recess ends
- Jan. 4. Winter Term begins
- March 19. Close of Winter Term
- March 19. Spring Recess begins
- March 29. Spring Recess ends
- June 15. Commencement Day

Organization

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JACOB P. BATES

Vice-President

HAROLD PEABODY

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WILLIAM M. WARREN

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Professor of Education, Harvard

REV. ENDICOTT PEABODY

Principal of the Groton School

FRANK E. SPAULDING

Supt. of Public Schools, Newton

CHARLES S. CLARK

Supt. of Public Schools, Somerville

WILLIAM ORR

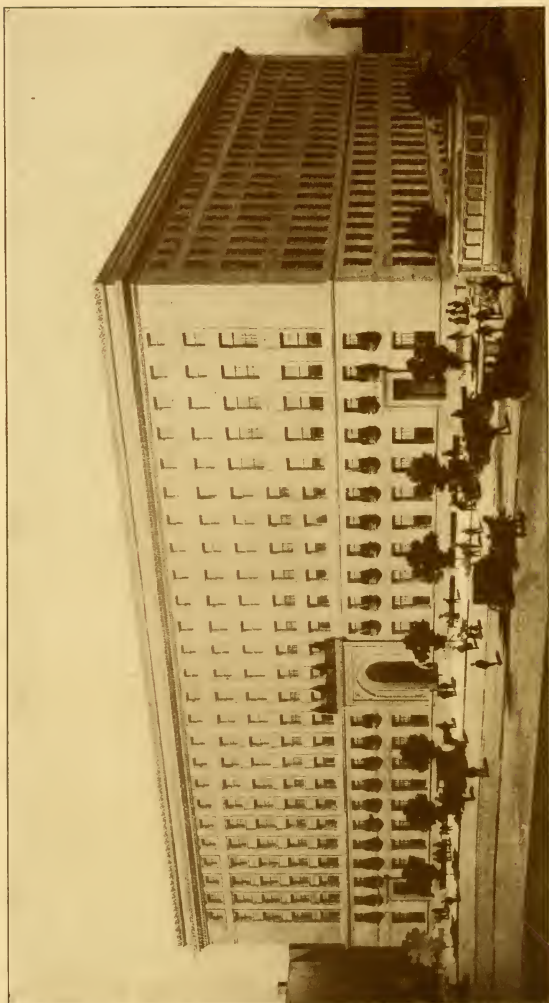
Deputy Commissioner of Education

FREDERICK P. FISH

Chairman of State Board of Education

JOHN S. LAWRENCE

Merchant



MAIN BUILDING

Executive Officers
of Department of Education

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Director

GALEN D. LIGHT, A.B.
Asst. Director and Bursar

EDWARD H. BROOKE, A.B.
Registrar

CHARLES B. GRAY, A.B.
Secretary

FRED L. DAWSON
Field Secretary

Faculty



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(Harvard University)

Headmaster

CHARLES H. SAMPSON, S.B.

(University of Maine)

Head of the Technical Department

LUTHER F. ELLIOTT, B.S.

(Bridgewater Normal)

(Harvard University)

Head of Grammar Department

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(Boston School of Commerce and Finance)

Head of Commercial Department

Commercial Subjects

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(Union Medical College)

(Springfield College)

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(Columbia University)

(Harvard University)

Head of English Department

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Head of Department of Mathematics

WALTER H. BALDWIN

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(Chicago University)

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(Harvard University)

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Modern Languages

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(Harvard)
Latin, German

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(Mass. Institute of Technology)
Director of Electrical Laboratory
Electricity

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(Grove City College) (Harvard University)
Mathematics

FREDERICK C. HOSMER, A.B.
(Boston University) (Harvard University)
English, Commercial Subjects

EDGAR E. MITCHELL, Ph.B.
(Kansas Wesleyan University) (Harvard University)
Supervisor of Study

RALPH G. WHITE, A.M.
(Grove City College) (Harvard University)
Supervisor of Study

N. ELLIOT WILLIS
(Bridgewater Normal)
Grammar School

JAMES BROUGH
(Certified Art Master)
Freehand Drawing, Industrial Design and Interior Decoration

ARTHUR B. KING, A.B.
(Middlebury College)
Latin

EDWARD M. McCracken
Wood Working and Pattern Making

GEORGE F. SEXTON
Director of Athletics

FREDERICK W. WODELL
(Conductor of People's Choral Union)
Voice and Choral Director

EUSTACE L. GRAVES
Secretary

LEON F. JACKSON
Assistant Secretary



MAIN LOBBY

The Huntington School

THE Huntington School incorporates the best features of the best schools. Here the individual is neither embarrassed nor retarded by the class, but is encouraged at all times to do his best, with the inspiration that individual help offers. The wide range of studies and small classes with a large corps of skilled instructors give every pupil an opportunity to pursue the line of study for which he is adapted. The work appeals not only to those fitting for college, but to others who desire to continue their education.

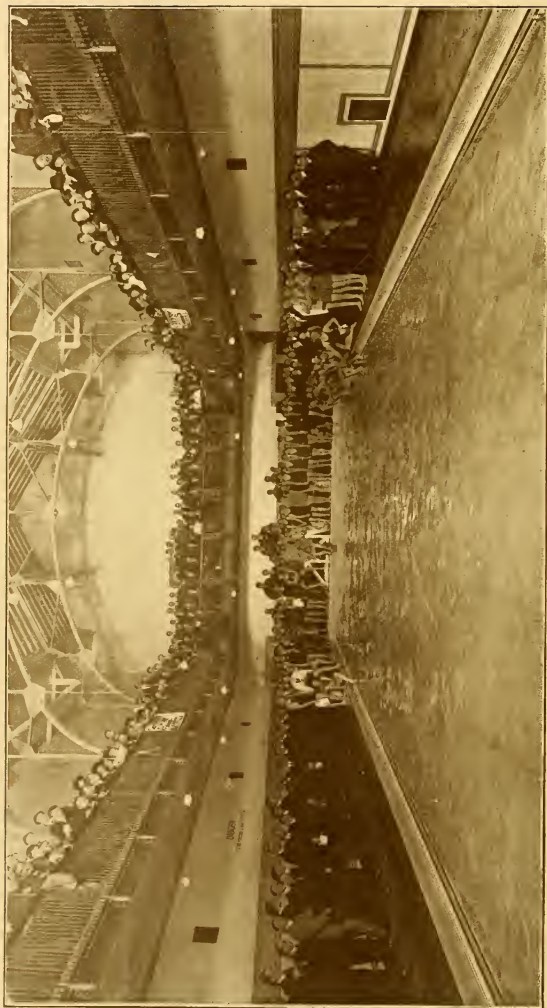
Features The following features will commend themselves to parents and students: male teachers, small classes, personal instruction, close supervision, firm but kind discipline, thoroughly modern methods, complete chemical and physical equipment, modern buildings, lectures, practical talks, athletics, gymnastics, social features, vocational training; a faculty of highly trained specialists.

AIM AND SCOPE

The School has as its chief object the preparation of boys for the colleges and the scientific schools, but provides training along engineering and business lines for those who do not expect to enter college.

The work of the School is divided into the following departments:

1. **Preparatory.** The work is offered in three courses, designated, respectively, the Harvard Course, the Technology Course and the General Preparatory Course. The subjects in the first two courses are largely determined by the entrance requirements to Harvard and the Massachusetts Institute of Technology. A large part of the General Preparatory Course is elective. A student then is able, by proper election, to comply with the entrance requirements of a school or college, or pursue vocational subjects if he wishes to enter upon his career when he completes the course.



WATER CARNIVAL

2. **Grammar.**—The work of the four upper grades is offered. The courses are arranged to suit the needs of those who expect to pursue a preparatory, a technical, or a business course in the upper school.

3. **Technical.**—A number of finishing courses along engineering lines are provided for those who expect to enter remunerative work upon completing any one of them.

4. **Business.**—Courses in Bookkeeping and Shorthand with allied subjects covering two, three and four years are offered for those who wish to enter schools of Business Administration or follow business pursuits upon completing one of the courses.

Each department is in charge of an expert whose function it is to provide for the special needs of the students under him.

In certain respects, each one of these departments is a separate school. The individual courses are conducted in a number of sections, each section being given the special kind of instruction that is necessary in preparing for college, for engineering work, or for business. Special pamphlets giving full information are published.

HISTORY

The Huntington School is now in the sixth year of its history. It opened in September, 1909, with an encouraging enrollment of excellent young men from the many cities and towns of eastern Massachusetts. The attendance has doubled each succeeding year and now there are 225 boys enrolled who are preparing for colleges or technical schools or for business pursuits. Although a large proportion come from Massachusetts, yet practically every state in the Middle Atlantic and New England states is represented. The remarkable growth has taken place notwithstanding that the school occupied temporary quarters for a time. The fact that it has had a steady growth proves conclusively that it has the confidence of the public and that its organization, administration, aims and purposes are in accordance with the best principles of modern education. *The School has done excellent work from the very first and is on the accredited list of preparatory and high schools whose certificates are accepted by the New England colleges.*



GAME AND SOCIAL ROOM—OLDER BOYS



GAME AND SOCIAL ROOM—YOUNGER BOYS

The school is now housed in the best equipped buildings of their kind. Every phase of the work is being carried on most effectively. The class rooms are of the best, the laboratories and shops are well equipped, the gymnasium and the swimming pool are the finest in New England. The many features which appeal to boys keep them happy in their work.

THE BUILDINGS

The location, surroundings and physical appointments of a school are of primary importance. The location ought to be healthful, accessible and attractive. Its buildings ought to be properly heated, lighted and ventilated and above all conducive to the health and progress of students at all seasons of the year. The buildings occupied by the Huntington School combine all these good qualities. They are located on Huntington Avenue, in the section of Boston noted for its institutions of learning; accessible from all parts of the city and suburbs and free from the outside influences which distract the attention of students. Nearly four acres of land are devoted to buildings and athletic field.

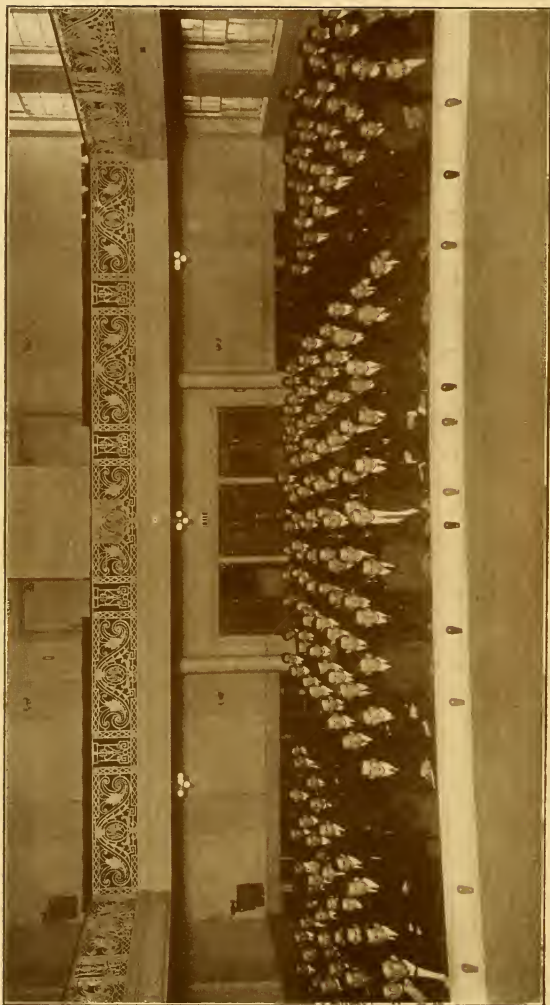
On looking at the buildings from the front, one gains the impression of a large square structure, 240x200x90, but this is not the case. There are in reality six buildings, each on its own foundation, and with the exception of the front and west side which are 90 feet high and 58 feet deep, the buildings are comparatively low, connected by corridors and bridges. This arrangement gives exceptionally fine light and air to all of them.

The six buildings are as follows: Administration, Assembly Hall, Education, Natatorium, Gymnasium and Vocational.

Administration Building Located in the Administration Building are the lobby, various offices of the administrative staff, reading and directors' room, committee rooms, libraries, reading and social rooms.

Jacob P. Bates Hall The Jacob P. Bates Hall has a seating capacity of nearly five hundred. A large stage, suitable for entertainments of all kinds is provided.

The Chapel exercises and lectures of the school are held here.



MORNING ASSEMBLY

Educational Building This building is 196 feet long by 58 feet wide and six stories high. In the basement are located the heating and ventilating plant, shops and laboratories. The first floor is taken up with game, social and club rooms, and a small assembly hall. On the second, third and fourth floors are located class rooms, drafting rooms, and laboratories. The fifth and sixth floors are used for dormitories.

Natatorium This building is located between the Jacob P. Bates Hall and the gymnasium, and is easily accessible from the locker rooms of the latter. The swimming pool is 75 feet long by 25 feet wide and is under a glass roof admitting floods of light and sunshine. The pool is supplied with filtered salt water from our own artesian well and heated to the proper temperature by an elaborate system of pipes. Altogether the Natatorium is one of the largest and best equipped of its kind.

Gymnasium This structure is known as the Samuel Johnson Memorial Gymnasium, the funds for which were provided by relatives of the late Samuel Johnson. On the main floor is the gymnasium proper, which is well equipped with the most approved apparatus. In the building are handball and squash courts, lockers, six bowling alleys, shower baths, rooms for special exercising, fencing, wrestling, etc., a running track and a visitors' gallery. The gymnasium is so arranged that by a system of sliding partitions, it can be divided into one, two or three separate compartments, making it possible to conduct a number of activities at the same time. Many new features in gymnasium construction and equipment have been introduced.

Vocational Building The Vocational Building is located directly back of the main group. This is a substantial structure 150x58 and three stories high, in which are located the woodworking plant, the electrical laboratories, machine shop and lecture halls.

EQUIPMENT

Laboratories The school is especially fortunate in having laboratories that are better fitted to carry on the work in the sciences than provided by most



GENERAL LIBRARY



REFERENCE LIBRARY

colleges. There are three large chemical laboratories, one large physical laboratory and a specially fitted lecture room, all excellently equipped with apparatus used for purposes of demonstration and for individual experiments in the courses required for admission to representative colleges.

The electrical laboratory is well equipped with apparatus of all kinds for making electrical tests and measurements.

Library The School has excellent facilities for study in the libraries and reading rooms. Besides the special reference libraries of the various school departments which are equipped with dictionaries, cyclopedias and special works for carrying on the work of the school in a most effective way, the students have access to the general library.



DRAFTING ROOM

**Drafting
Rooms**

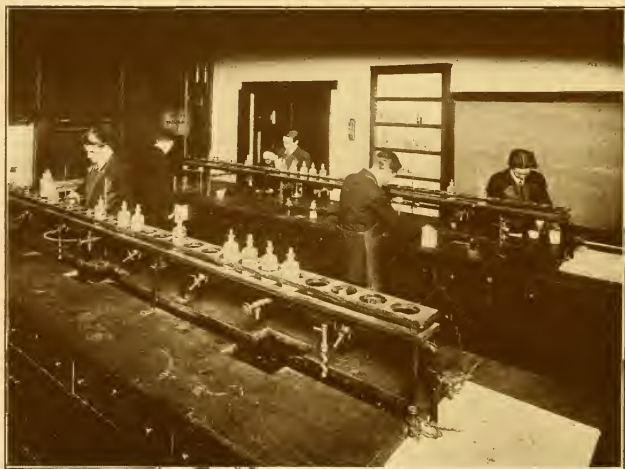
There are three large drafting rooms, well lighted with both natural and artificial light. The equipment provided is of the best.

Shops

A liberal amount of equipment has been provided for courses in wood working and machine shop practice. The machinery and tools are of commercial type and the output standard.



PHYSICS LABORATORY



CHEMISTRY LABORATORY
(One of Three)

General Information

THE students are under the most wholesome influences. The school is non-sectarian but thoroughly Christian in character. The discipline is firm but reasonable. The relations between teachers and students are close and friendly, constituting a most important element in the life of a school. Students are expected to cultivate self control, truthfulness and a right sense of honor. The discipline of the school is not adapted to boys who require severe restrictions. *A boy whose influence is felt in any way to be injurious will be removed from the school.*

Reports The progress of the students is watched very closely. Instructors make weekly reports to the Headmaster based on class work. Written tests are frequently given during the term. On the basis of the class work and the written tests, weekly reports are sent to the parents, signed by the Headmaster. In cases where it is deemed necessary reports are sent more frequently, and an effort is made in other ways to secure the most effective co-operation between parents and teachers. When it seems advisable, daily reports of the students' work may be made to the home. Special reports are sent home at the close of each division of the year.

The following system of grading is used:

- A 90% to 100%
- B 80% to 90%
- C 70% to 80%
- D 60% to 70%
- F Failure

The passing mark is 60%.

Hours of Attendance The hours of attendance for the school are from 9.00 A.M. to 2.30 P.M. A recess of thirty minutes gives the students an opportunity for a light luncheon. Students may remain after 2.30 to receive special help on their lessons or they may be required to remain after 2.30 to make up back work. The laboratories and drawing rooms are open until 4.30.



JUNIORS IN THE GYMNASIUM



BASKET BALL TEAM 1914

Sessions

The school year is divided into three terms ending respectively at the Christmas and Spring recesses, and at Commencement. There are short vacations between the terms.

The Preparation of Lessons

The question of preventing the lowest third of the class from interfering with the progress of the upper two-thirds and at the same time doing full justice to the lowest third, has always been a difficult problem to solve.

Nearly every boy finds difficulty with at least one of his studies. This may be due to a variety of causes such as a lack of natural aptitude, defective early training, lack of mental concentration, poor memory, laziness or some similar failing. Whatever the cause may be, the case almost always calls for special treatment, if substantial progress is to be made. At this school there are two distinct ways in which we overcome these difficulties.

First: By maintaining small classes and doing much individual teaching.

Second: By employing teachers who supervise study, and give assistance to those who need it. Such supervisors remain until five o'clock each day.

Athletics

Facilities are provided for both outdoor and indoor sports. Among these are football, track athletics, basket ball, baseball, swimming, hockey, tennis and handball. The sports and exercises of the boys are under the guidance of the physical director and his assistants. Games are arranged with other preparatory and high school teams. Games are closely supervised at home, and when contests take place elsewhere, the teams are accompanied by members of the faculty.

The athletic grounds used by the school joins the land on which the building stands. Here are found a large running track; pole vaulting, high and broad jumping pits; 100 yard straight-away, tennis courts, football field, baseball field and hockey rink. It is unusual for a city school to have such excellent athletic facilities near the buildings.

Musical Clubs

The students of the school who are musically inclined have an opportunity to become members of the Glee Club and the Orchestra. Musical specialists are employed to take charge



TRACK TEAM 1914
(Indoor Track Champions of Private Schools of New England)



BASEBALL TEAM 1914

of this work and members will find that the time thus spent will not only be pleasant but profitable. The orchestra and Glee Club unite in giving concerts during the year. Certain credit is given toward graduation to members of a musical organization.

Y. M. C. A. Membership All members of the school become regular members of the Boys' Department or the General Y. M. C. A., depending upon whether they are under eighteen years of age or over.

Because of such membership students are permitted to enjoy a large number of privileges not generally found in private schools. Membership in the Boston Association is recognized in any association in North America, and members when travelling are eligible to enjoy the privileges of the association in the town or city in which they are sojourning subject to local regulations.

Students' Tickets Students who live in suburban towns can secure railroad tickets at greatly reduced rates by applying at the office of the railroad.

Lunches Students can secure their lunches in our restaurant. The prices are reasonable and the food provided of the best.

Rooms Students from a distance may by early application secure rooms in the building. Excellent table board can be had also. The charge for rooms ranges from \$2.00 to \$4.00 a week; good table board is furnished for \$5.00 a week up. The rooms and dining facilities are not under the direct management of the School, but of the Boston Y. M. C. A. Students of the School who room in the building are therefore subject to the regulations of the Association.

Gymnasium Uniforms It has been found advisable to have a uniform suit for the gymnasium classes. Therefore, new pupils are requested not to get their suits before entering the School. Orders will be taken in the Physical Department, immediately upon the opening of the School in the fall.

Ventilation The ventilation of the school building represents the highest development of modern engineering skill. Large volumes of fresh,



GLEE CLUB 1914

pure air, thoroughly washed by a special process, are forced into the schoolrooms by fans in the basement and drawn out by another set of fans on the roof. Humidifiers are a part of the system. The proper amount of moisture, therefore, is maintained in the atmosphere.

Each morning the students assemble for morning exercises. A portion of the period is given over to devotional exercises and the remainder is devoted to music, current events, Bible study, moving pictures of an educational nature, or a lecture on some interesting subject by a specialist. The time thus spent commends itself as a most valuable and practicable feature.

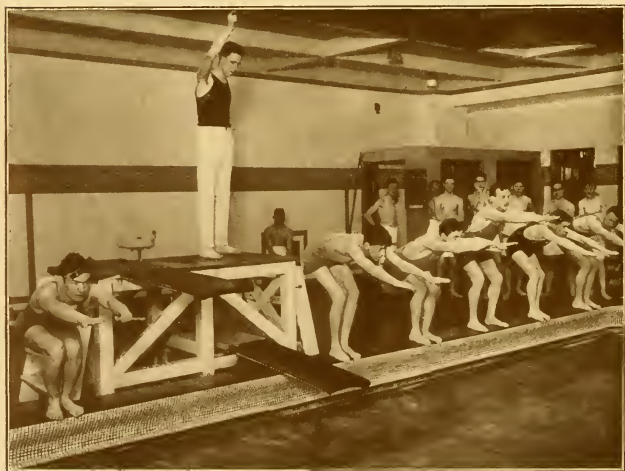
CHAPEL TALKS

The following is a partial list of lectures given by prominent men during the year:

"Building a Career" (A series of talks)	FRANK P. SPEARE Director of Education, Boston Y. M. C. A.
"Accountancy as a Profession"	GEORGE W. BISHOP, C.P.A.
"The Ministry as a Profession"	DEAN W. W. FENN Harvard Divinity School
"Factors in Modern Civilization"	PROF. W. A. HONLINE International Y. M. C. A. Secretary
"Y. M. C. A. Work in India"	A. C. HARTE Associate Secy., Y. M. C. A. in India
"Life in Chaldea"	REV. JOHN EMANUEL, UR., Chaldea
"Secretarial Work as a Profession"	GEORGE W. MEHAFFEY General Secretary, Boston Y. M. C. A.
"Medicine as a Profession"	DR. F. M. BRIGGS Secy. Tufts College Medical School
"Mechanical Engineering as a Vocation"	A. E. NORTON Asst. Prof. Engineering Drawing, Harvard University
"The Manufacture of a Shoe" (With Moving Pictures)	MR. JOHN F. O'CONNELL United Shoe Machinery Co.
"Getting a Job"	MR. F. W. ROBINSON Employment Dept. of the Boston Y. M. C. A.
"Dentistry as a Profession"	DEAN EUGENE H. SMITH Harvard Dental School



THE POOL



THE START

"Making Good"	PRIN. F. W. WRIGHT Uniontown High School
"Manufacture of an Automobile" (With Moving Pictures)	H. T. MYERS N. E. Agent for the Studebaker Corporation
"Teaching as a Profession"	FRANK W. THOMPSON Asst. Supt. of the Boston Public Schools
"The Law as a Profession"	WILLIAM LACKEY Boston Lawyer
"Industrial Chemistry"	ELLWOOD B. SPEAR Asst. Prof. of Chemistry, Mass. Inst. of Tech
"Life and Customs in the Scottish Highlands"	JOHN SEAMUS Hereditary Chief of Clan Alpine & Feargus
"Does It Pay to go to College"	DR. L. H. MURLIN President of Boston University
"Opportunities in Boston"	JOHN F. FITZGERALD Ex-Mayor of Boston

Courses of Study

ENTRANCE REQUIREMENTS

ONLY normal boys of good character will be admitted to the School. They may enter either on examination, or on presentation of evidence sufficient to show that they have received a preparation equivalent to that given by a grammar school. For admission to our grammar school, see page 51.

DIPLOMA COURSES

The following courses of study leading to a diploma are offered:

Four Year Courses—So many of our students prepare for Harvard and the Massachusetts Institute of Technology that outlines of courses which prepare for these schools are given, showing not only a logical sequence of subjects, but the most economical way to pursue them.

HARVARD COURSE

This course as outlined totals $16\frac{1}{2}$ units, the number required by Harvard for entrance.

<i>First Year</i>		<i>Second Year</i>	
English I	5 hrs.	English II	5 hrs.
French I	5 "	French II	5 "
Algebra I	5 "	Plane Geometry	5 "
Ancient History	5 "	Latin I	5 "
Total	20 hrs.	Total	20 hrs.
<i>Third Year</i>		<i>Fourth Year</i>	
English III	3 hrs.	English IV	3 hrs.
French III	5 "	French IV	5 "
Algebra II	3 "	Trigonometry	2 "
Solid Geometry	2 "	Latin III	5 "
Latin II	5 "	Chemistry or U. S. History	5 "
Physics	5 "		
Total	23 hrs.	Total	20 hrs.

Students may offer four years of Latin and three years of French. In that case Latin is begun in the first year and French in the second.

TECHNOLOGY COURSE

This course will prepare one for any technical school or scientific course of any college or university.

<i>First Year</i>		<i>Second Year</i>	
English I	5 hrs.	English II	5 hrs.
French I	5 "	French II	5 "
Algebra I	5 "	Plane Geometry	5 "
Elementary Science	2 "	German I	5 "
Mechanical Drawing	3 "		
<hr/> Total		20 hrs.	<hr/> Total
	20 hrs.	20 hrs.	
<i>Third Year</i>		<i>Fourth Year</i>	
English III	3 hrs.	English IV	3 hrs.
French III	5 "	U. S. History	5 "
Algebra II	3 "	Review Mathematics	5 "
Solid Geometry	2 "	Mechanical Drawing	5 "
German II	5 "	Chemistry	5 "
Physics	5 "		
<hr/> Total		23 hrs.	<hr/> Total
	23 hrs.	23 hrs.	

GENERAL COLLEGE PREPARATORY COURSE

This course permits of considerable election. Students who wish a general training in secondary school work are advised to follow this outline:

<i>First Year</i>			
Required Courses			
	Per week		Per week
English I	5 hrs.	Algebra	5 hrs.
French, German or Latin	5 "		
Elective Courses			
Latin	5 hrs.	German	5 hrs.
Elementary Science	2 "	Stenography	5 "
English History	5 "	Freehand Drawing	2 "
Bookkeeping	4 "	Woodworking	2 "
Mechanical Drawing	4 "	Typewriting	5 "
French	5 "		
<i>Second Year</i>			
Required Courses			
English	5 hrs.	Plane Geometry	5 hrs.
French, German or Latin	5 "		
Elective Courses			
Latin	5 hrs.	Spanish	5 hrs.
French	5 "	Ancient History	5 "
German	5 "	Mechanical Drawing	4 "
Machine Drawing	4 "	Bookkeeping	4 "
Electricity	2 "	Freehand Drawing	2 "
Wood Working	2 "		
<i>Third Year</i>			
Required Courses			
English	3 hrs.	Algebra II	5 hrs.

Elective Courses			
	Per week		Per week
Latin .....	.5 hrs.	American History .....	.5 hrs.
French .....	.5 "	Industrial History .....	.3 "
German .....	.5 "	Commercial Law .....	.3 "
Spanish .....	.5 "	Economics .....	.3 "
Physics .....	.5 "	Ancient History .....	.5 "
Chemistry .....	.5 "	Machine Drawing .....	.4 "
Bookkeeping .....	.4 "	Architecture .....	.4 "
Shorthand .....	.5 "	Wood Working .....	.4 "
Typewriting .....	.5 "	Industrial Designing .....	.4 "
Electricity .....	.4 "		

Fourth Year

Required Courses	
English .....	.3 hrs.

Elective Courses			
Latin .....	.5 hrs.	Applied Mathematics .....	.5 hrs.
German .....	.5 "	Review Mathematics .....	.5 "
French .....	.5 "	Solid Geometry .....	.3 "
Physics .....	.5 "	Trigonometry .....	.3 "
Chemistry .....	.5 "	Architecture .....	.4 "
Electricity .....	.4 "	Industrial Designing .....	.4 "
Illustrating and Cartooning .....	.4 "	Lettering .....	.2 "

Three Year Courses—These courses are intended for those who do not expect to enter college. The work is exceedingly practical and prepares for various positions along engineering lines.

TECHNICAL COURSE

First Year		Second Year	
Algebra I .....	.5 hrs.	Algebra II .....	.5 hrs.
English I .....	.5 "	English II .....	.5 "
Arithmetic .....	.3 "	Plane Geometry .....	.5 "
Elementary Science .....	.2 "	Industrial History .....	.3 "
Freehand Drawing II .....	.1 "	Drafting (6) .....	.3 "
Drafting (8) .....	.4 "	Pattern Making (4) .....	.2 "
Woodworking (4) .....	.2 "		
Total .....	.22 hrs.	Total .....	.23 hrs.

Third Year

Applied Mathematics .....	.5 hrs.
English III .....	.3 "
Mechanics .....	.3 "
Materials .....	.2 "
Drafting (6) .....	.3 "
Physics .....	.5 "

Total......21 hrs.

ELECTRICAL COURSE

First Year		Second Year	
Algebra I .....	.5 hrs.	Algebra II .....	.5 hrs.
English I .....	.5 "	English II .....	.5 "
Arithmetic .....	.3 "	Plane Geometry .....	.5 "
Elementary Science .....	.2 "	Electricity .....	.2 "
Electricity .....	.3 "	Drafting (6) .....	.3 "
Drafting (6) .....	.3 "	Electrical Laboratory (4) .....	.2 "
Pattern Making (4) .....	.2 "		
Total .....	.23 hrs.	Total .....	.22 hrs.

Third Year

Applied Mathematics	5 hrs.
English III	3 "
Mechanics	3 "
Materials	2 "
Electricity	3 "
Drafting (4)	2 "
Physics	5 "

Total 23 hrs.

ARCHITECTURAL COURSE

First Year

Algebra I	5 hrs.
English I	5 "
Arithmetic	3 "
Elementary Science	2 "
Freehand Drawing (4)	2 "
Drafting (6)	3 "
Woodworking (2)	1 "

Total 21 hrs.

Second Year

Algebra II	5 hrs.
English II	5 "
Plane Geometry	5 "
Industrial History	3 "
Architectural Drafting (6)	3 "
Freehand Drawing (2)	1 "

Total 22 hrs.

Third Year

Applied Mathematics	5 hrs.
English III	5 "
Mechanics	3 "
Materials	2 "
Architectural Drafting XV	7½ "

Total 22½ hrs.

CERTIFICATE COURSES

Two-Year Courses—Although the length of the commercial courses is two years, the ability of the student and his previous training determine the length of time it takes to complete either one.

SHORTHAND COURSE

The principal subjects are shorthand and typewriting. The other part of the work is selected from the subjects given below.

BOOKKEEPING COURSE

The principal subject in this course is bookkeeping. Courses are made up for each student in accordance with his requirements, from the list of subjects given below.

Commercial Law	Mental Arithmetic
Phonography (Pitman)	Rapid Calculation
Typewriting (touch)	Filing
Commercial Geography	Cataloging
Industrial History	Spelling
English Grammar	Spanish
English Composition	French
Correspondence	German
Written Arithmetic	

Subjects offered in other departments may be elected in conjunction with the commercial work.

ARCHITECTURAL DRAFTING

Applicants for this course should possess, in order to insure the best success, a working knowledge of the principals of arithmetic, elementary algebra and plane and solid geometry.

The course covers about one hundred plates and treats, in a most complete manner, the following subjects:

- Orthographic Projection
- Lettering
- Development and Intersection of Surfaces
- Freehand Drawing
- Tracing
- Blueprinting
- Details of Building Construction
- Details of Classic Mouldings
- The Orders of Architecture
- Architectural Design
- Planning
- Building Materials and Specifications
- Shading and Rendering in Pen and Ink
- Water Color
- History of Architecture
- History of Ornament

One Year Courses—Two courses are offered for those who wish to secure in a short time a practical training before entering upon technical work. They contain the same work, in condensed form, as offered in the longer courses.

TECHNICAL COURSE

Only those who have completed a High School course or its equivalent are permitted to register for the work as outlined below.

Applied Mathematics	5 hrs.
Mechanics	3 “
Materials	2 “
Drafting (30)	15 “
<hr/>	
Total	25 hrs.

MACHINE DRAFTING COURSE

This course is open to grammar school graduates who are mature.

The instruction given covers, in a very complete manner, all of the fundamentals such as lettering, orthographic projection, developments and intersections of surfaces. Details of machine parts and assembly drawings are made in sufficient number to insure a proper understanding of methods in common use. A large amount of time is given to the sketching of machines and the completion of finished drawings from the sketches. A large number of drawings are inked, many are

traced, and everything is completed in a manner as nearly as possible like that required by the demands of actual drafting-room practice. In addition to the regular course, considerable instruction is given on isometric projection, perspective and elementary machine design. An honest effort is made to turn out men who know what they are doing when they come to accept a position.

Special Courses—In addition to the work outlined, courses are given in

Industrial Design
Interior Decoration
Plane Surveying
Show Card Writing
Woodworking

**Requirements
for
Graduation**

For graduation from the School from any of the four year courses, the applicant must have had sixteen hours of English, fifteen hours of mathematics (algebra and geometry), ten hours of a foreign language, five hours of a science, and five hours of history. The remaining 34 hours of the 75 required for graduation, may be selected from the elective courses. An opportunity is given, therefore, to select such work as is required by any particular college for which the applicant may be preparing or to take vocational courses should the applicant wish to complete his education with the work of this school.

For graduation from any of the three year courses, the applicant must be credited with sixty hours of work. The courses outlined must be adhered to excepting in instances where the faculty consider it expedient to allow changes.

In courses in which certificates are granted, the recipients do not graduate at the close of the year. These are issued when a course is completed.

**Assignment
to Years**

Assignment of students to classes who are pursuing diploma courses is based on the number of hours of work each student has accomplished. Thus, First Year is composed of boys who have less than fifteen hours credit; Second Year of those who have fifteen and less than forty; Third Year of those who have forty and less than sixty; Fourth Year of those having sixty or more.



STUDY HALL



PHYSICS LECTURE ROOM

The Departments

ENGLISH

THE course in English, planned both for students entering college and for students entering business, is designed to instruct them to speak, to read and to write English with ease, intelligence and taste. Supplementary reading and reports are required of all classes. Frequent consultations for critical discussion of essays are arranged.

English 1 (5 hrs.) *Applied Grammar.* Punctuation, Dictation, Letter Writing. Irving's Sketch Book; Scott's Marmion; Longfellow's Courtship of Myles Standish; Macaulay's Lays of Ancient Rome.

English 2 (5 hrs.) *Applied Rhetoric.* Oral Expression. Bunyan's Pilgrims' Progress; Homer's Iliad; Eliot's Silas Marner; Stevenson's Treasure Island; Coleridge's The Ancient Mariner.

English 3 (3 hrs.) *Argumentation, written and oral.* History of English Literature. Addison's Sir Roger de Coverly Papers; Tennyson's Idylls of the King; Shakespeare's Merchant of Venice, Julius Caesar.

English 4 (3 hrs.) *Composition, oral and written.* History of American Literature. Macbeth, Milton's L'Allegro, Il Penseroso and Comus, and Burke's Speech on Conciliation with America; Macaulay's Life of Johnson; Palgrave's Golden Treasury.

THE MODERN LANGUAGES

The direct language method so successfully expounded in Dr. Worman's language text books is used and students acquire more than an elementary book knowledge. They *use* the foreign languages and cultivate ear and tongue so as to become proficient both in the structure and expression of French, German and Spanish.

FRENCH

French 1 (5 hrs.) Worman's First French Book; Colin's Elementary Lessons or Chardenal's Complete French Course;

Roger's French Sight Reading; Labiche, *La Grammaire*; La Cigale, *La Fontaine's Fables*.

French 2 (5 hrs.) Worman's Second French Book and his *Grammaire*; François, *Elementary French Composition*; Labiche, *La Poudre aux yeux*, *Le Voyage de M. Perrichon*; Molière, *Le Malade imaginaire*; Dumas, *Les trois Mousquetaires*; Taine, *La France Contemporaine*.

French 3 (3 hrs.) Worman's *Grammaire*; Lamartine, *Révolution Française*; Selections from Maupassant, Th. de Banville, Meilhac at Halevy, and others; Koren, *French Composition*.

French 4 (2 hrs.) Classic plays, and selections from Balzac, and others; Victor Hugo, *Hernani*; Rostand, *Cyrano de Bergerac*; critical essays on France, its people and its literature.

GERMAN

German 1 (5 hrs.) Worman's Complete German Grammar; Worman's First German Book, Gohdes and Buschek, *Sprach und Lesebuch*; Benedix, *Der Prozess*, *Gruss aus Deutschland*.

German 2 (5 hrs.) Worman's German Grammar, Worman's Second Book, Worman's Collegiate Reader. Such reading from modern authors as Volkmann, *Kleine Geschichten*; Gerstäcker, *Germelshausen*; Storm, *Immensee*; Arnold, *Fritz auf Ferien*; Schiller's *Glocke*.

German 3 (3 hrs.) Becker, *Deutsch für Ausländer*; Wildenbruch, *Das edle Blut*; Baumbach, *Die Nonne von Liliencron*, Anno 1870; Keller, *Kleider machen Leute*; Heine, *Die Harzreise*; Meyer, *Das Amulet*; German Composition.

German 4 (2 hrs.) Becker, *Deutsch für Ausländer*; Schiller, *Wilhelm Tell* or *Die Jungfrau von Orleans*; Lessing, *Minna von Barnhelm*; Goethe, *Egmont*, *Hermann und Dorothea*, and critical essays on Germany, its people and its literature.

SPANISH

Spanish 1. Worman's First Spanish Book; or Marion, *Introducción á la lengua castellana*; Coester, *Spanish Grammar*; Morrison, *Tres Comedias Modernas* and selections from other authors.

Spanish 2. Worman's Second Spanish Book; Bonilla's Spanish Daily Life. The latter part of this course consists in reading and criticising modern literature, with written analyses and conversational exercises, also a practice in reading and writing commercial Spanish, together with a study of the people and history of Spanish speaking countries.

LATIN

The four years' course in Latin will prepare students for examination for entrance to any college.

Latin 1 (5 hrs.) *Beginners' Latin.* First year Latin lessons complete. Easy Latin prose.

Latin 2 (5 hrs.) *Caesar, Sallust and Latin Composition.* Review of constructions, forms and application of rules of syntax.

Latin 3 (5 hrs.) *Cicero's Orations against Cataline*, for the Manilian Law, for Archias. Grammar. Composition. Translation at sight from Caesar and Sallust.

Latin 4 (5 hrs.) *Virgil's Aeneid.* Translation at sight from Ovid, Sallust and others. Composition.

HISTORY

History 1 (2 hrs.) *English History.* A study of the great lessons of Anglo-Saxon development in freedom and intelligence.

History 2 (3 hrs.) *United States History.* Includes enough of English history to enable one to understand American. Emphasis is placed on the careers of eminent men, on civic legislation and on territorial and constitutional expansion.

History 3 (2 hrs.) *Industrial History.* The aim is to acquaint the student with the great sea routes and ports, the products transported; the changes produced by wars, steam and electricity in the long period covered by ancient, mediaeval and modern history.

History 4 (3 hrs.) *Ancient History.* The ancient world to 800 A. D. Emphasis is placed on the life, literature, art and political, social and religious institutions of the foremost nations as these have influenced modern civilization.

MATHEMATICS

Mathematics 1 (2 hrs.) *Arithmetic*. A course covering the essentials of practical arithmetic.

Mathematics 2 (5 hrs.) *Algebra I*. The essential operations of algebra to quadratics. The emphasis is on the fundamental principles.

Mathematics 3 (5 hrs.) *Plane Geometry*. The five books. A large number of original exercises stimulate the power to reason clearly and to derive logical proofs.

Mathematics 4 (5 hrs.) *Algebra II*. Covers the college entrance requirements. Designed for students who have acquired the fundamental principles.

Mathematics 5 (2 hrs.) *Algebra IIb*. A rigorous course covering all college requirements in elementary algebra.

Mathematics 6 (5 hrs.) *Applied Mathematics*. Practical applications of algebra, geometry, physics, trigonometry, logarithms, slide rule and graphs.

Mathematics 7 (2 hrs.) *Solid Geometry*. The standard theorems in solid and spherical geometry. Stress is laid upon numerical exercises involving mensuration of solid figures.

Mathematics 8 (5 hrs.) *Review of Algebra and Geometry*. This course covers the requirements of Algebra and Geometry for college entrance.

Mathematics 9 (3 hrs.) *Plane Trigonometry*. Logarithms. The solution of right and oblique triangles. Goniometry.

SCIENCE

Science 1 (2 hrs.) A course in *Elementary Science* dealing with the common things of life. The course is arranged as an introduction to science and is intended to give one a broad and helpful view of the physical sciences.

Science 2 (5 hrs.) *Physics*. Recitation and laboratory work covering preparation for college. Constant drill in the solution of problems involving the elementary principles of Physics.

Science 3 (5 hrs.) *Inorganic Chemistry* covering the work of preparation for college; recitations, lectures, demonstrations and laboratory work. Independent work, observation and reasoning are insisted upon.

COMMERCIAL STUDIES

Commerce 1 (5 hrs.) *Penmanship.* Spelling and business papers.

Commerce 2 (5 hrs.) *Commercial Arithmetic* and rapid calculation.

Commerce 3 (2 hrs.) *Commercial Geography.* The products of leading nations; soil and climate; commercial relations, transportation. Emphasis placed on the commercial geography of New England States.

Commerce 4 (5 hrs.) *Bookkeeping.* Single and double entry bookkeeping.

Commerce 5 (5 hrs.) *Shorthand.* Principles of Ben Pitman Shorthand. Practice in writing and reading. Shorthand dictation and transcription of notes. Office practice.

Commerce 6 (5 hrs.) *Typewriting.* The touch method of typewriting; carbon copying, filing, mimeographing, dictation, tabulating, office practice.

Commerce 7 (2 hrs.) *Economics.* Elements of Economics.

Commerce 8 (2 hrs.) *Industrial History.* Social, economic and industrial history of the United States.

Commerce 9 (3 hrs.) *Business English.* Numerous forms of letters and business forms. Emphasis is placed on punctuation, details of construction, capitalization and choice of words.

Commerce 10 (2 hrs.) *Commercial Law.* A course covering the elements of business law.

MANUAL ARTS

Manual Arts 1 (4 hrs.) *Wood-Working.* Bench work in wood with tools, from drawings made by the student.

Manual Arts 2 (4 hrs.) *Wood-turning* and general speed lathe work from standard designs; patternmaking.

MECHANICAL DRAWING

Mechanical Drawing 1 (4 hrs.) Use of drawing instruments, T square, triangles, etc. Simple projections, nuts and screws, oblique projections, penetration of solids, simple gearing.

Mechanical Drawing 2 (4 hrs.) *Machine Drawing.* The aim of this course is to teach the proper way of making the

necessary dimensioned drawings for use in practice. The instruction includes: (1) the making of sketches of the parts of the machine from measurements. (2) The detail scale drawing from the sketches and a tracing. (3) An assembly drawing of the machine.

ELECTRICITY

Electricity 1 (*2 hrs.*) The work given in this course will be of the simplest and most elementary character. It will consist of lectures and recitations covering the general phenomena of Electricity as given in the usual textbooks of Physics, and of practical work which will deal with the running of bell circuits, adjusting of bells, setting up of batteries and similar elementary apparatus.

Electricity 2 (*4 hrs.*) In this course will be taken up in the lecture and recitation work the principle of the dynamo and motor, their operation, electrical measurements and the principles of installing wiring. The practical work will include setting up of motors and generators, operating them, study of the operation of arc and incandescent lamps and simple problems of wiring.

Electricity 3 (*4 hrs.*) This course will deal with the principles of alternating currents, effects of inductive and capacity reactance, the principles of alternating current machinery, generators, induction and synchronous motors, transformers and synchronous converters and for practical work the experimental study of similar apparatus.

While the work of this year will be put in as simple a form as possible it should be understood that at best it is far more difficult than the former courses and is advised only for students who have a marked mathematical capacity.

Electricity 4 (*4 hrs.*) The lecture work of this course will deal with modern electrical theory, principles of distribution for light and power purposes, arrangement of power stations and similar advanced matters.

Laboratory work will be given in connection with the above so far as may be practicable and numerous visits will be made to places where the matters discussed may be studied as applied to actual operation.

PHYSICAL TRAINING

This department is under a specialist and is considered of the utmost importance. He is assisted by gymnasium instructors and athletic coaches. The aim of the physical work is to give every boy a well developed body. This is done through systematic gymnasium work and athletics. The student body is divided into three groups: juniors, intermediates and seniors. At the beginning of the year efficiency tests are given to each group. Those who pass are eligible to participate in the seasonable competitive sports. The students who do not have an all around development are given corrective gymnasium work. Interest in Inter-scholastic games is fostered, as well as competitions between the classes. A number of teams in each of the sports is organized, so that each boy may participate with boys of his own ability. No boy is permitted to take part in any of the more strenuous sports before receiving a careful physical examination.

BIBLE INSTRUCTION (*1 hr.*)

Bible instruction is offered once a week. Attendance is required of every boy. The School is non-sectarian. No attempt, therefore, is made to bias the student, the only objects being to inspire respect for the teachings of the Bible, and to familiarize the student with its contents.

MUSIC (*1 hr.*)

The school has in its faculty a skilled teacher of music who has charge of the chorus and the general musical features of the School. Opportunity is given to those musically inclined to become members of the Glee Club and the orchestra.



CORNER OF ELECTRICAL LABORATORY



FREEHAND DRAWING ROOM

Vocation Department

AIM AND SCOPE

THE aim of the Vocation Department is (1) to enable the student who will continue his education beyond the secondary school stage to select intelligently and as early as possible the vocation or profession in which his interests, natural aptitudes and abilities will enable him to be most successful, and to advise the best means of preparing for it; (2) to advise the student who does not expect to enter a higher institution of learning of the fields of work best suited to his limited training, his special ability and inclinations, and to provide suitable work in a number of such vocations.

There has been much said about vocational training and many plans formulated to enable men to enter the work for which they are best suited but as yet very little of practical value has been accomplished. Most of the so-called vocation bureaus are run either apart from school systems or when closely connected are often nothing more than employment bureaus. The proper time to give vocational advice is when the student is securing his training, not after he has had all or a large part of it.

Although not many schools have formulated a practical scheme to give vocational advice and training yet educators throughout the world have awakened to the fact that building a career is as much a matter for careful planning and scientific adaptation as the construction of a house, railroad or any great engineering undertaking. It has often been stated that all men are created free and equal. They are free in America and equal in the sight of God, but so far as powers and weaknesses, likes and dislikes, aptitudes and limitations, are concerned, there are no two persons alike.

The schools have, however, obliged these dissimilar persons to subscribe to uniform standards and courses, resulting in great waste of effort, heavy shrinkage and a large percentage of "misfits."

The Call to Service The graduate or attendant at any school or college, upon seeking employment, is asked by a cold, critical world, two clean-cut, searching questions which must be answered: namely, "What can you do, and how well can you do it?" It is the answer which determines one's opportunities, standing in society, income, comforts and fullness of life.

The Business of the Schools It should be the business of the schools to enable young people to answer these questions satisfactorily, by giving them sufficient skill in certain lines so that they may look the world in the eye, answer with confidence, and join the onward march, with a reasonable hope of success. The schools should seek to place each student in possession of the accumulated knowledge and experience of his predecessors, actual creative ability, and awaken in him an appreciation of his opportunities and responsibilities.

Present Opportunities Competition is sharp in all departments of life. There are, however, more and better chances for boys and young men than ever before, but it takes a better equipped, more vigorous and forceful personality to succeed than in past ages.

Industrial Economics In this age of high speed machinery, rapid processes, division of labor, utilization of by-products, refined methods of manufacture and merchandising, there is no disposition on the part of employers to labor with those who come poorly equipped, and they give the preference to persons who can at once enter upon their duties with intelligence and skill.

The Old Ideal The old conception of education was a process of intellectual training intended for gentlemen's sons in distinction from the training given to those who were obliged to earn their living. This view has gradually changed until at the present time, it is almost impossible to discover the line of cleavage between cultural subjects and vocational subjects, one merging into the other. The present application includes much of the culture of former years, combined with vocational training sufficient to enable one to assist in the world's work.

The Selection of a Vocation One of the most important steps in one's life is the choice of a vocation. The wise selection of the business, profession or trade to which one's life is to be devoted, and the development of efficiency in the chosen field, are matters of the deepest moment to young men and to the public. These vital problems should be solved in a careful, scientific way, with due regard to each person's aptitudes, abilities, ambitions, resources and limitations, and their relations to the conditions of success in different fields of activity.

The Vocation Department seeks to aid young men in testing their aptitudes and abilities, choosing an occupation selecting the best means of preparing for it, and building up a career of efficiency and success.

Adaptation the Key to Success If a boy takes up a line of work to which he is adapted he will achieve far greater success than if he drifts into an industry for which he is not fitted. An occupation out of harmony with the worker's aptitudes and capacities means inefficiency; unenthusiastic, and perhaps distasteful labor and low pay, while an occupation in harmony with the nature of the man, means enthusiasm, love of work and high economic values—superior product, efficient service and success. If a young man chooses his vocation so that his daily work exercises his best abilities, he will have laid a foundation of success and happiness. But if his daily work does not call forth his abilities and enthusiasm, or he does not find in it sufficient opportunity for exercise and development; if his occupation is merely a means of making a living and the work he loves to do is side-tracked into the evening hours, or pushed out of his life altogether, he will be only a fraction of the man he ought to be.

The Need for Expert Guidance Boys and girls are guided to some extent, but finally are allowed to drift in this complex world at will. There is no part of life where the need of guidance is more essential than in the choice of a vocation, adequate preparation for it, and the attainment of efficiency and success. The building of a career is a more difficult problem than the building of a house; yet few ever sit down with pencil and paper



AT THE BENCHES



WOOD TURNING SHOP

and with the advice of an expert to plan a career and deal with the life problem scientifically, as they should deal with the problem of building a house, taking the advice of an architect.

Boys generally drift into this or that employment by chance, proximity or uninformed selection. The high percentage of inefficiency and change in their working forces experienced by many merchants, manufacturers and other employers and the cost it entails in employment expense, waste of training and low-grade service are due largely to the haphazard way in which young men and boys drift into this or that employment, with little or no regard to adaptability, and without adequate preparation, or any definite aim or well-considered plan to ensure efficiency, devotion and development.

No attempt is made to decide for the student what occupation he should choose but every effort is made to help him to come to true conclusions for himself. Information, inspiration and co-operation is the motto.

METHOD OF PROCEDURE

As previously stated, the boys with whom the department deals are divided in two classes; those who will enter college and those who will complete their systematic education with this school.

The student who prepares for college is advised to take with his preparatory course some vocational subject as outlined on page 48. It is possible to do this and still conform to the entrance requirements of a particular college. Through this vocational work he will become acquainted with a field which may interest him and develop some special ability. The training he receives in this way will also be of considerable use should he wish to earn money when in college or during vacation periods.

The student who expects to complete his systematic education in this school or is uncertain about entering college pursues a course made up of general and vocational work. His special aptitude and ability determine to a large extent the kind of vocational courses he takes up.

Professional and business men give talks to the students each on the particular field in which he has been successful. Through these talks, students learn considerable of a large

number of lines of work. Something a speaker may say may incite the ambition of the student and cause him to investigate the vocation under consideration. Often a conference can be arranged with the speaker. The student can then talk over, at some length, the vocation which interests him. He gets information at first hand; learns something of the field, the training needed, the opportunities and the returns. (See page 25.)

Under the supervision of the director the student makes a systematic study of the vocation in which he may appear interested. Books and various articles are placed before him and a thorough study of the vocation is made, including the manner of securing the necessary training.

After such an investigation, the student may find that the field does not appeal to him. Another vocation may be taken under consideration. If it does not create the right interest, still another can be investigated. The result is that the student, although he may not decide on any one, will secure a general knowledge of a large number of lines of work, which will make it possible, when the time is ripe, to select intelligently.

To be sure there are many other things beside inclination and ability which enter into the selection of a vocation, and they must be considered by the student and his adviser. The length of preparation needed, the influence of relatives, financial considerations, and a dozen other things just as important, determine one's work.

VOCATIONAL COURSES

The vocational subjects offered during the different years are enumerated and described below:

Vocation 1. *Office Routine and Business Practice.* The work consists of card cataloging, letter filing, letter copying, operation of duplicating machines, simple accounts and office practice.

Vocation 2. *Mechanical Drawing.* Use of drawing instruments, T squares, triangles, etc. Simple projections, nuts and screws, oblique projections, penetration of solids, simple gearing.

Vocation 3. *Machine Drawing.* The aim of the course is to teach the proper way of making the necessary dimensioned

drawings for use in practice. The instruction includes: (1) the making of sketches of the parts of the machine from measurements. (2) The detail scale drawing from the sketches and a tracing. (3) An assembly drawing of the machine.

Vocation 4. *Bookkeeping.* Single and double entry book-keeping.

Vocation 5. *Principles of Ben Pitman Shorthand.* Practice in writing and reading. Shorthand dictation and transcription of notes. Office practice.

Vocation 6. *Typewriting.* The touch method of typewriting; carbon copying, filing, mimeographing, dictation, tabulating. Office practice.

Vocation 7. *Practical Electricity.* The subjects taught in this course are broadly covered by the general titles; wiring methods, batteries, bells and annunciators, spark coils and ignition devices.

Vocation 8. *Practical Electricity.* Among the subjects considered: dynamo machinery, direct current motors, distribution of power, electric lighting, etc.

Vocation 9. *Practical Electricity.* Elements of alternating currents, alternators, transformers, motors, conversion of A. C. to D. C. electrical measurements, etc.

Vocation 10. *Freehand Drawing.* This course is intended to discover artistic ability. The work will consist of drawing from typical models by which students learn a sense of proportion and the principals of perspective. This course is followed either by Vocation 2, Vocation 12 or Vocation 13, depending upon the kind of ability of the student.

Vocation 11. *Industrial Design and Interior Decoration.* The courses in industrial design lead directly into such arts and crafts as wood and stone carving, wrought and bent-iron work, brass and copper work, stained glass, furniture and drapery, interior decoration, book covers, wall paper, fabrics and other allied industrial arts.

Vocation 12. *Illustrating and Cartooning.* Drawing from draped life models to gain knowledge of proportions, anatomy and the use of the different mediums used in rendering the figure for reproduction. Weekly compositions for illustrations and cartoons are submitted and criticised.

Vocation 13. *Architecture.* A course including the fundamental principles underlying all kinds of mechanical and architectural drawing; geometrical problems, orthographic projections and the five orders of architecture.

Vocation 14. *Woodworking.* Bench work in wood with tools, from drawings made by the student.

Vocation 15. *Wood-Turning,* and general speed lathe work, from standard designs. Patternmaking.

Vocation 16. *Boat Building.* The construction of sail and power boats and canoes of various designs. This is the most advanced course in wood-working and is preceded by Vocation 2, 14 and 15.

When once a student has discovered a line of work which interests him and for which he has ability he proceeds along that line until he has gained sufficient knowledge to secure and hold a position.

The following are some suggested groups of vocational courses:

Vocation 2, 3

Vocation 1, 5, 6

Vocation 2, 7, 8, 9

Vocation 4

Vocation 10, 11

Vocation 10, 12

Vocation 10, 13

Vocation 2, 14, 15 and 16

The vocational courses 3, 4, 5, 6, 11, 12, 13 require from one to three years to complete, depending upon the ability of the student and the amount of time put in.

Grammar Department

IN response to a feeling of many parents that a private school where much individual attention is given is preferable to a public school not offering these advantages, a Lower School offering fifth, sixth, seventh and eighth grade work is conducted in connection with the Huntington School. Here with male instructors, small classes, departmental teaching and careful supervision, very satisfactory results have been achieved. Definite vocational and physical training and an opportunity to hear some of the most prominent men of Boston, in addition to the uplifting environment of the Association, afford the very best all-round development.

ADMISSION

Boys who have been in good standing in other schools, public or private, and have completed four grades of the elementary course may be admitted either by passing examinations or submitting a statement of the work completed from the principal or teacher.

SESSIONS

The sessions of the Grammar School are held daily except Saturdays and holidays. The school day begins at 9 a. m. and closes at 5 p. m. Recitations are conducted from 9 a. m. until 2.30 p. m., with a half hour for lunch. The period after 2.30 o'clock is taken up with physical exercise, excursions and the preparation of the lessons for the following day.

Such arrangement makes it possible for us to send the boys home ready to enjoy whatever their parents have planned for them. Parents need not then concern themselves about "home work" and they need not feel anxious about how their sons are spending the afternoon.

Grammar School pupils are supervised during the afternoon period both in their exercise and in their preparation of studies for the following day.

We know that excellent results can be produced by holding ourselves entirely responsible for the boy's training in his

studies. We recommend, therefore, that parents place their sons with us for the entire day.

Boys whose parents wish them to leave school at 2.30 may do so.

COURSES OF STUDY

Fifth and Sixth Grades

The work of the fifth and sixth grades deals largely with getting a good working knowledge of the tools of education. The pupil is given thorough instruction in the fundamentals of arithmetic, extended training in English with the allied subjects and other branches usually taught in the fifth and sixth grades. The aim at all times is to give the pupil such a knowledge of the essentials that he may progress rapidly in the subsequent years of his school career. The course of study of the Horace Mann School of New York is followed.

Seventh and Eighth Grades

The work of the seventh and eighth grades is suited to the needs of all classes of students. Three distinct courses are offered, the successful completion of any one of which admits the pupil to the Preparatory School, the Technical School, or the Business School where he may continue the line of work upon which he has begun or make a fresh start by electing a different course.

Literary Course for those who expect to go through the preparatory school and college.

The work of the course is made up of:

Literature, Composition, Spelling, Penmanship, Mathematics, Geography, History and Science.

Physical Training, Music and General Exercises.

Modern Language.

Drawing.

Most of the pupils are enrolled in this course.

Commercial Course for those who expect to take the Commercial Course in the Business School or who intend to go to work in offices or stores at the end of the grammar grades. The work of the course is made up of:

Literature, Composition, Spelling, Penmanship, Mathematics, History, Geography and Science.

Physical Training, Music and General Exercises.

Bookkeeping, Business Forms and Procedure, Business Arithmetic and related subjects.

Typewriting.

Manual Arts Course for those who expect to take a course in the technical School or who intend to go to work in the trades at the end of the grammar grades.

The work of the course is made up of:

Literature, Composition, Spelling, Penmanship, Mathematics, Geography, History and Science.

Physical Training, Music and General Exercises.

Drawing, Designing. Wood Working and Repairing.

Standard of Work The same standard of work is maintained in the Grammar Department as in the best public and private schools. Pupils who have completed our course can take up work in our advanced schools or in the public High Schools without further examinations.

Departmental Teaching The departmental system of teaching common to the high school is used. This plan has been tried out and has proved entirely satisfactory.

Point System Students are not embarrassed or retarded by the class. Promotions are made on the number of points secured. It is therefore possible for one to do work in some subjects in the sixth grade and in other subjects in the seventh grade. No attempt is made to introduce the leveling process so common to many schools where it is impossible to advance to higher work in any subject unless all of the work of the preceding grade or form has been completed. Promoting by points enables teachers to keep pupils interested and eliminates a great deal of the dropping out of students during the upper grammar grades.

Modern Languages Modern language work is provided for the boys of the seventh and eighth grade as elective work. Arrangements can be made for instruction in languages for the younger boys also. The best time to take up a foreign language is between the tenth and fifteenth years, when the tongue is pliable, the memory tentative and the observing powers alert.

Huntington Summer School

THE summer session of the Huntington School opens June 22nd, 1914, and continues for three months. The aim of the school is to provide tutoring and class instruction for those who are conditioned in grammar school, high school and college subjects and for those who wish to prepare for the entrance examinations to Harvard, Massachusetts Institute of Technology and the New England colleges.

All of the courses usually offered for admission to college are scheduled.

The teaching force is made up of men of the regular school faculty, who have had a large experience in preparing students.

The school has been successful in preparing for examinations. During the summer of 1913 one or more boys entered each of the following schools: Harvard, Dartmouth, Boston University, Tufts, Massachusetts Institute of Technology, Massachusetts Agricultural College and Exeter.

The courses are so conducted that much individual instruction is given. It is possible, therefore, to accomplish a great deal during the session. At the opening of the term, the student announces his plans and every effort is made to have him realize them.

The tuition rate is \$50; \$30 payable upon entering, and the balance at the beginning of the sixth week.

Books are loaned by the school to those who make a deposit of \$2. The deposit is refunded when the books are returned.

A special circular of the school will be forwarded upon request.

Financial

THE rates of tuition of the Huntington School are lower than those of other good private schools. This is made possible through the liberal endowment in buildings and equipment.

Tuition The tuition fee for full courses in the preparatory or the technical departments is \$175 a year. The first payment of \$100 is due when the student is admitted to classes, and the final payment of \$75 on or before February 1.

The tuition fee for the Grammar and Business departments is \$150 a year. The first payment of \$90 is due when the student is admitted to classes and the final payment of \$60 on or before February 1.

The tuition fee for the special one-year technical course is \$125 a year, payable \$75 on entrance and \$50 on February 1.

The tuition for the Architectural Drawing and the Machine Designing courses is \$75 a year. Forty dollars is payable on entrance and \$35 February 1.

For special courses, rates will be quoted on application.

Members of the School previous to the year 1914 pay the tuition which was in force when they entered upon their course providing the student has been in continuous attendance.

The tuition fee includes, besides instruction, membership in the Y. M. C. A., gymnasium privileges, supervised athletics and supervised study until five o'clock for those who remain after the regular hours.

Books Books will be furnished free of charge to members of the School prior to the school year 1914-15.

Registration Fee A registration fee of \$5 is due from all new students when a place is reserved. The fee is not a part of the tuition, and, *when once paid, will not be refunded.* It is collected only once during the student's connection with the school. All former students are expected to register before July 1, and new students before September 1. Places in the school are limited.

When an applicant enrolls in the school, it is understood unless otherwise specified, that he enrolls for the entire year and is liable for the tuition for that period. Should it be necessary, in the opinion of the Faculty, for him to discontinue his work, a refund of tuition will be made at the rate of one half the amount paid per month for the unexpired time. When a student is obliged to miss school because of illness, a refund of the same amount per month is made after the first two weeks.

Manual Training	Students who take manual training are charged with the material used when the articles made are removed from the department.
Athletic Fee	<i>All students pay an athletic fee of \$5. This secures membership in the athletic association and admits the student to all athletic contests and exhibitions throughout the year.</i>
Late Entrance	Students who enter the School before November 1, pay the full tuition. After that date, the tuition is dependent on the number of months in attendance.
Graduation	All students graduated from the School are charged \$5 which covers the cost of the diploma and expenses incidental to graduation.
Special Courses	Special provision is made for students who wish to take up only one or two subjects. Rates will be quoted upon application.
Payments	Make all checks payable to the Boston Young Men's Christian Association.

References

We refer, by permission to the following patrons:

- Lyman W. Brooks, Atty at Law, 687 Main St., Cambridge, Mass.
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Wm. Edwin AtLee, Lieut. U. S. Revenue Cutter Service, Port Angeles, Wash.
Gardiner Hathaway, Real Estate and Insurance, Marblehead, Mass.
George W. Brainard, Real Estate and Insurance, 50 State Street, Boston

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5150

THE CO-OPERATIVE ENGINEERING SCHOOL

CATALOG
1914-1915

PUBLISHED BY THE
EDUCATIONAL DEPARTMENT
OF THE
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
316 HUNTINGTON AVENUE
BOSTON, MASS.

DEPARTMENT OF EDUCATION

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

EVENING LAW SCHOOL

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four-years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

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Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses, preparing for business and admission to our School of Commerce and Finance.

SCHOOL OF COMMERCE AND FINANCE

Evening Sessions

Established 1907; incorporated 1911. Offers the following four-year courses leading to the degree of B. C. S. (Bachelor of Commercial Science): Banking, Business Administration, Finance and Bond Salesmanship, and Professional Accountancy. Any one passing the examination for advanced standing, is enabled to complete any one of the four regular courses and secure the degree in three years. Special courses in addition to regular courses.

PREPARATORY SCHOOL

Evening Sessions

A school of high school grade to prepare students for Colleges, Scientific Schools, West Point, Annapolis, Lowell School for Industrial Foremen, and the classified Civil Service.

HUNTINGTON SCHOOL

Day Sessions

A high-grade school, consisting of a Grammar Department (5th, 6th, 7th and 8th grades), a Preparatory Department, fitting for the Colleges, Medical and Dental Schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law Schools and the classified Civil Service, and a Technical Department, fitting for positions along engineering lines.

POLYTECHNIC SCHOOL

Evening Sessions

A school offering three- and four-year courses in Chemistry, Chemical, Electrical, Structural, Railroad, and Municipal Engineering.

AUTOMOBILE SCHOOL

Day and Evening Sessions

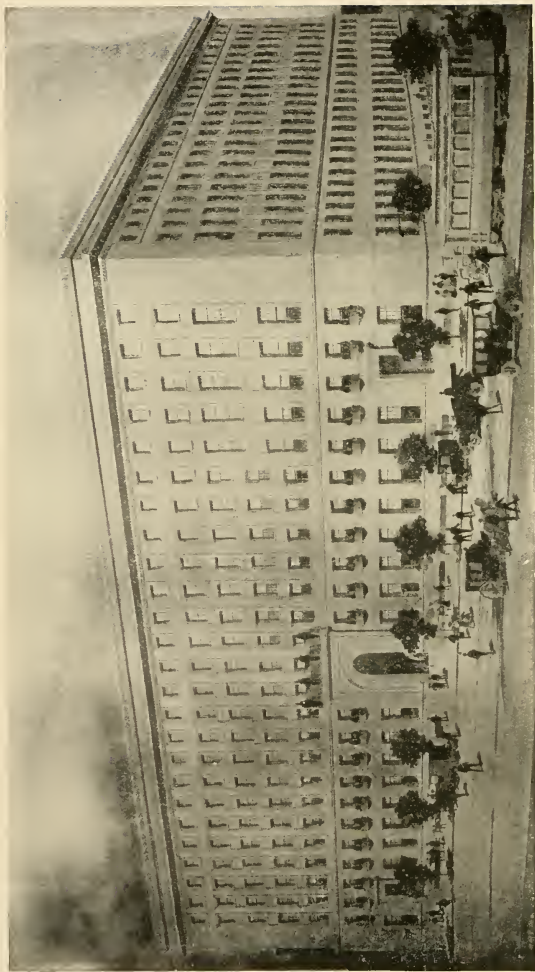
Deals with the construction, care, repair and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage.

For further information concerning any of the above schools, or departments, address the Director of Education,

FRANK PALMER SPEARE,
316 Huntington Avenue,
Boston, Mass.

CATALOG
OF THE
CO-OPERATIVE
ENGINEERING
SCHOOL
BOSTON
1914-1915

CATALOG
OF THE
INSTRUCTING STAFF
TOGETHER WITH
A Statement of the Requirements for Admission
AND
A Description of the Courses of Instruction



OUR NEW HOME

This is a picture of the new Association Building which was finished in the Fall of 1913. It contains, among other features, school accommodations of the very best, a fine gymnasium, bowling alleys, swimming pool, café, dormitories, shops and laboratories, library and reading room, camera club rooms, social and recreative rooms, and auditorium.

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YEARLY CALENDAR

1914

1915

JANUARY							JULY							JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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FEBRUARY							AUGUST							FEBRUARY							AUGUST						
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MAY							NOVEMBER							MAY							NOVEMBER						
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JUNE							DECEMBER							JUNE							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	1	2	3	4
7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11
14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18
21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25
28	29	30	27	28	29	30	31	27	28	29	30	26	27	28	29	30	31	..
..

CALENDAR

1914

February 23, Monday
Washington's Birthday Celebration (School exercises omitted)
April 20, Monday
Patriots' Day Celebration (School exercises omitted)
May 30, Saturday
Decoration Day (School exercises omitted)
June 1-13, inclusive
Final examinations
June 16, Tuesday
Graduation
June 17-September 12, inclusive
Summer vacation
June 11 and 12, Thursday and Friday
Entrance Examinations of Co-Operative Engineering School
July
Practical work commences for First Division
September 9-10, Wednesday and Thursday
Second Entrance Examinations for Co-Operative Engineering School
September 14, Monday
First Term of the year 1914-1915 commences
September
Practical work for Second Division commences
October 12, Monday
Columbus Day (School exercises omitted)
November 26, Thursday
Thanksgiving Day (School exercises omitted)
December 21-26, inclusive
Christmas Recess (School exercises omitted)

1915

January 18, Monday
Second Term begins
February 22, Monday
Washington's Birthday (School exercises omitted)
April 19, Monday
Patriots' Day (School exercises omitted)
May 31
Decoration Day Celebration (School exercises omitted)
June 1-12, inclusive
Final Examinations
June 10-11, Thursday and Friday
Entrance Examinations of Co-Operative Engineering School
June 11, Friday
Graduation
June 14-September 11
Summer Vacation
July
Practical work for First Division commences
September 8-9, Wednesday and Thursday
Second Entrance Examinations for Co-Operative Engineering School
September 13, Monday
First Term of the school year 1915-1916 commences
September
Practical work for Second Division commences
October 12, Tuesday
Columbus Day (School exercises omitted)
November 25, Thursday
Thanksgiving Day (School exercises omitted)
December 20-25 inclusive
Christmas Recess (School exercises omitted)

OFFICERS OF ADMINISTRATION

General Administrative Officers

ARTHUR S. JOHNSON, *President*
JACOB P. BATES, *Vice-President*
HAROLD PEABODY, *Recording Secretary*
FRANCIS B. SEARS, *Treasurer*
GEORGE W. MEHAFFEY, *General Secretary*

Educational Committee

JOHN ROUSMANIERE, *Chairman*
WILLIAM E. MURDOCK
ALBERT H. CURTIS
MORGAN L. COOLEY
GEORGE H. MARTIN

Educational Administrative Officers

FRANK P. SPEARE, *Director of Education*
GALEN D. LIGHT, *Asst. Director of Educ. and Bursar*
H. W. GEROMANOS, *Supt. of Evening School System*
IRA A. FLINNER, *Supt. of Day School System*
CHARLES B. GRAY, *Secretary*
ERNEST H. BROOKE, *Registrar*

ADVISERS

The following gentlemen are acting in an advisory capacity on the more important executive matters of the school where their service is of the greatest value to us:

Dr. Richard Maclaurin, President of Massachusetts Institute of Technology.
Charles A. Prosser, Secretary of National Commission on Industrial Education.

James P. Munroe, Secretary of Massachusetts Institute of Technology Corporation.

William McKay, General Manager, New England Gas & Coke Co.

Paul Winsor, Chief Engineer, Boston Elevated Railway Company.

OFFICERS OF INSTRUCTION

H. W. GEROMANOS, S.B., Mass. Inst. Tech.
DEAN

CARL S. ELL, S.B., M.S., Mass. Inst. Tech.
ASSISTANT DEAN

J. A. COOLIDGE, S.B.
Mathematics and Physics

LOREN N. DOWNS, Jr., S.B.
Electrical Engineering

D. V. DRISCOLL
Chemistry

CARL S. ELL, S.B., M.S.
Civil Engineering

A. L. GARDNER, S.B.
Mechanical Engineering

H. W. GEROMANOS, S.B.
Chemistry and Metallurgy

W. E. RICHARDSON, S.B.
Surveying and Railroad Engineering

FREDERICK C. HOSMER, A.B.
English

JOHN W. HOWARD, S.B.
Surveying

ERVIN KENISON, S.B.
Descriptive Geometry

MYLES S. MAXIM
Mechanism

THOMAS E. PENARD, S.B.
Mathematics

M. E. PINKHAM
Mathematics

CHARLES H. RESTALL, B.S.
Railroad Engineering

C. H. SAMPSON, S.B.
Mechanical Drawing

W. LINCOLN SMITH, S.B.
Electrical Engineering

ELLWOOD B. SPEAR, A.B., Ph.D.
Chemistry

SAMUEL A. S. STRAHAN
Chemistry

D. M. TAYLOR, S.B.
Valve Gears

HAROLD I. WILLIAMS, B.S.
Mechanical Drawing

At the time of going to press, our annual election of instructors for the year has not been held, and so it is impossible to publish a complete list of the faculty for 1914-1915.



TAKING LEVELS FOR A CROSS SECTION
Weymouth Landing
Aspinwall and Lincoln, Civil Engineers



INSERTING COILS IN 150 HORSE-POWER ARMATURE
Armature Shop
Boston Elevated Railway Company

GENERAL INFORMATION

It has generally been conceded that, where the practical and the theoretical elements of education can be taught simultaneously, the greatest good is derived by the student, and efforts are being made in all departments of education to accomplish this greatly desired end.

Technical school instruction, depending on class room work and laboratories, must always lack some of the vital characteristics of an actual manufacturing plant, owing to the fact that one is for educational purposes, while the other is operated for dividends. It is this latter fact that gives the Co-Operative School idea one great advantage over our usual educational plan. Instead of protecting the student, and training him for several years, for a line of work to which he may later find himself to be entirely unfitted, the Co-Operative School at once puts the boy to work in a commercial plant. There he learns life in its vital issues, as well as the problem of getting along with men; thus early finding out whether he has made a wise, or unwise, choice of his life work. This training, too, shows him the use and value of his school work, and finally gives him an unusual opportunity to acquire from actual experience that rare thing, *executive ability*, without which his life probably will always be spent on the lower levels of industry.

That the young men of New England might have an opportunity to attend such a technical school, where both practice and theory are correlated, and at the same time be enabled to defray a large part of the expense of their education by the returns from their practical work, the Co-Operative Engineering School of the Boston Young Men's Christian Association was started in 1909.

This school has now been in operation for five years, and the continually increasing interest in it, as well as its rapid and steady growth, show that it was much needed to fill a place that is filled by no other school in this vicinity.

OBJECT OF THE SCHOOL

The fundamental aim of this school is to train, for positions in Engineering work, young men who are unable to attend the highest grade technical schools, or colleges. Thus they are enabled to advance farther, and more rapidly, in their chosen work than they could reasonably expect to do without further education than that of a high school course. The training is not in any sense that of a trade school, nor is it exactly that of our best scientific schools, but it stands between the two. The work done is that of a regular technical school, of high standards, but only the essential subjects are taken, and they, only so far as they will have a direct bearing on the life work of the student. In other words, it is a limited technical training of high grade. The fact that most of our instructors are graduates of, or instructors in, the Massachusetts Institute of Technology, will show the character of work being done.

At present there are four lines of Engineering work being given, and the end sought is to give to students who have already had a high school preparation, or its equivalent, a good training in the fundamental sciences of Mathematics, Chemistry, and Physics, and in the important applications of the principles of these sciences to the several branches of engineering. More stress is laid on the development of the ability to apply the acquired knowledge to new engineering problems, than to the memorizing of a multitude of details and very abstract theory, which, while valuable, cannot be gone into too deeply in a course of this type.

The class room instruction is given to small sections, and in the drawing rooms and laboratories, the students receive a great deal of personal attention. The independent solution of assigned problems forms a large part of nearly all courses.

The courses differ from those of many schools, in that a student is not permitted a wide range of subjects from which to choose, in the belief that better results are obtained by prescribing, after the student has selected the line of work for which he desires to prepare himself, the principal studies which he is to pursue.

PLAN OF OPERATION OF THE SCHOOL

To illustrate the idea of the curriculum at the school, take for instance, the case of a young man "A" who desires to take our Mechanical Engineering course.

"A" is assigned to one of the plants of a firm that is co-operating with us. Here he is put to work and spends that week working in the shop. The next week, "B" his mate, who has spent the first week in the school, takes "A's" place in the shop, and "A" puts in the week at school. Thus the work goes on, the two men exchanging places at the beginning of each week. The studies pursued in the course have a direct practical bearing on the outside work, with the exception of a few courses added, because of the aim which we have, to produce a better citizen, as well as a better employee. The courses given have been decided upon after conference between the co-operating employers and the school authorities, and are the result of the best ideas of both. The subjects are taught in a practical, not in an abstract, or a theoretical way. Thus, in mathematics, instead of teaching algebra, analytic geometry and calculus, as so many separate subjects, they are correlated and taught as instruments for the solution of practical problems arising in engineering work. The aim throughout the course is to give it practical bearing and yet have it complete and thorough in all the needed essentials.

At the time of going to press, the School is working on an alternation interval of two weeks. This plan has been found to be more satisfactory than the one-week period, by a similar school, and, if it proves to be better for our students, we will retain it. Otherwise we will revert to the one-week period heretofore in vogue.

Correlation of Practical and Theoretical Work

The outside work of the student is as carefully planned as that at the school, and it is progressive. The employers who co-operate with us generally agree, where practicable, to employ the boys in all the different departments of their establishments during their periods of practical duties; this training is just as complete as the school work, and is just as thorough. Where possible, the course of the learner is from the handling

of the raw material to the shipment of the finished product. This practical training includes the use of the machines, as well as the executive duties of the plant, so that at the end of his course the graduate may not only know how to do things, but also why they are done in certain ways, and he may, we hope, be of value in improving methods of work.

Co-Operating Firms:

The following firms are co-operating with us at the present time and giving employment to our students:—

Boston Elevated Railway Co.

Boston & Albany Railroad Co.

Mechanical Engineering Department

Civil Engineering Department

Boston & Maine Railroad Co.

Mechanical Engineering Department

Civil Engineering Department

Boston Consolidated Gas Co.

Aspinwall and Lincoln, Civil Engineers

New York, New Haven & Hartford Railroad Co.

Bay State Street Railway Co.

Civil Engineering Department

Mechanical Engineering Department

Edison Electric Illuminating Co.

A. D. Little Co., Inc.

Engineering Chemists

H. F. Bryant, Civil Engineer

Simplex Electric Heating Co.

Simplex Wire and Cable Co.

Frank E. Sherry, Civil Engineer

Gray & Davis, Inc.

Electrical Devices for Automobiles

Several other firms have agreed to co-operate with us, but the demand for our boys, this year, was such that we were unable to fill all the positions offered.

Thus far, we have secured new positions for our students as the growth of the School has demanded. However, to be at all sure of work in his chosen branch of engineering, an applicant should file his application early, as the number of positions in any one line is necessarily limited.

SCHEDULES OF PRACTICAL WORK

Below are typical schedules of practical work that have been prepared for our students by some of the companies which are giving our boys employment:—

BOSTON ELEVATED RAILWAY CO.

First Year

Six months, pit work in carhouse.
Six months, armature room.

Second Year

Twelve months, machine shop work.

Third Year

Six months, mechanical drafting room.
Six months, power station work.

Fourth Year

Six months, line department.
Six months, electrical engineer's department.

BOSTON & MAINE RAILROAD COMPANY

Six months, air brake shops.
One year, erecting work.
One year, machine shop.
One year, engine house repairs.
Six months, drafting room and testing work.

BOSTON CONSOLIDATED GAS CO.

Nine months, data takers.
Three months, office.
Three months, pipe fitter's helpers.
Three months, pump man's helpers.
Three months, blowers and exhausters.
Three months, laboratory.
Three months, boiler room.
Three months, generator house.
Three months, steam fitters.
Three months, machine shop.
Three months, assistant engineers.
Six months, laboratory.
Three months, distribution department.

SIMPLEX WIRE AND CABLE CO.

Six months, Insulating Department.
Six months, Braiding Department.
Six months, Cable Shop.
Six months, Twisting Department.
Six months, Machine Shop Construction Gang.
Six months, Electrical Construction Gang.
One year, Testing Room.

SIMPLEX ELECTRIC HEATING COMPANY

Machine Department	1 year	
Grinding Department	1 month	} $\frac{1}{2}$ year
Stock Department	4 months	
Winding Department	$\frac{1}{2}$ month	
Enamelling Department	$\frac{1}{2}$ month	
Assembling Department	$\frac{1}{2}$ year	
Testing Department, First Division	$\frac{1}{2}$ year	
Testing Department, Second Division	$\frac{1}{2}$ year	
Shipping Department, approximately	2 mos.	} $\frac{1}{2}$ year
Drafting Department, approximately	4 mos.	
General shop experience	$\frac{1}{2}$ year	

The above programmes show what the boys do in their practical work, and the courses of study pursued at the school show what they do along academic lines. It will be seen that there is a considerable degree of correlation between theory and practice in the work they take up. The men under whose supervision the boys have been in their outside work, are practically unanimous in approval of our plan, and speak highly of the enthusiasm, earnestness and intelligence the students have shown in the performance of their duties.

Attitude of Co-Operating Firms

Almost all the concerns which co-operated with us last year, took one, or more, additional pairs of our students this year, which in itself is significant of their attitude toward our plan.

Earnings

For the practical work the student does, he is paid a certain amount per hour at the start, and a definite increase per hour, after completing fixed periods of service. The sum earned is more than enough to pay the tuition and the necessary expenses of schooling, but will not cover the cost of living.

In some cases the boys are paid at a higher rate than is called for by their schedule of pay, but that is a courtesy of the company that gives them employment, and is not in any way to be expected as a regular thing. The co-operating firms may make any salary schedule they desire, so long as it does not fall below that originally agreed upon.

The companies which co-operate with us, agree to pay our students ten (10) cents per hour during their first year of service; twelve (12) cents per hour during the second year; four-

teen (14) cents per hour during the third year, and sixteen (16) cents per hour during the fourth year.

Basing the earnings on this scale, the student will earn from five (5) to six (6) dollars per working week during the first year, and an increase of approximately one (1) dollar per working week, for each succeeding year of the four. As there are about thirty weeks of work per year, the earnings will be from one hundred and fifty dollars, upwards.

Frequently a student is able to earn much more than the regular rate, owing to getting extra pay for overtime work.

A census of our students who were working in January, 1914, gave the following data in regard to earnings:

Minimum weekly wage.....	\$5.00
Maximum weekly wage.....	12.65
Minimum earnings for January, 1914.....	9.60
Maximum earnings for January, 1914.....	31.65
*Minimum earnings for year 1913.....	150.00
*Maximum earnings for year 1913.....	375.00

Expenses

As the earnings of the students average from \$150 to \$300 a year, while expense for tuition, books, drafting supplies, etc., and membership in the Y. M. C. A. is not over \$110, there is a considerable balance for incidentals.

While the School supplies all books, drawing instruments, slide rules, note books, etc., it has been found impracticable to furnish the students with paper, drawing ink and pencils, during the year. In consequence of this, the student will have a slight expense, of less than a dollar, for paper and pencils, after he uses those supplied at the beginning of the year.

Relation of the Co-Operative School to High Schools

This School is peculiarly adapted to the high school graduate who, although financially unable to continue his studies further, still has the ambition and ability to get ahead if given the opportunity. Thus boys, being graduated from high school, can still live at home, but spend their time in fitting themselves for something better in the future.

*Based on a total working period of thirty weeks.

This year, the School has a student body made up of graduates of the following High Schools:

Amesbury High School	Lynn English High School
Beverly High School	Malden High School
Black River Academy	Marblehead High School
Boston English High School	Marlboro High School
Boston Latin School	Medford High School
Boston Mechanic Arts High School	Middleboro High School
Bromfield High School	Milford High School
Cape Elizabeth High School (Maine)	Natick High School
Charlemont High School	Norwood High School
Chelsea High School	Peabody High School
Chicopee High School	Reading High School
Concord High School	Rindge Technical High School
Cony High School (Augusta, Maine)	Sanford High School (Maine)
Everett High School	Salem High School
Foxboro High School	Saugus High School
Framingham High School	Somerville English High School
Gardiner High School (Maine)	Swampscott High School
Gardner High School	Tilton Seminary
Groton High School	Tisbury High School
Hamilton High School	Wakefield High School
Hardwick High School	Waltham High School
High School of Commerce	Wayland High School
Holliston High School	Wellesley High School
Hudson High School	Weston High School
Huntington Preparatory School	West Roxbury High School
Hyde Park High School	Weymouth High School
	Wilmington High School

Number of Students

The number of positions at our disposal in any one branch of engineering is necessarily limited, and so the number of students who can work part-time in that line is also limited. In consequence of this, those students who apply first, will get first consideration in the matter of positions, and those who

wish to enter should present their applications as soon as possible.

Those applicants who apply for admission to the School too late to be assigned to practical work, may attend the School every week, or every alternate week, as they may wish, and will be assigned to practical work as soon as an opening occurs.

Outside Interests

A moderate participation in social and athletic activities is encouraged by the Faculty, although a standard of scholarship is required of the students which is incompatible with excessive devotion to such pursuits.

Four-Year Courses

Regular four-year courses leading to a diploma, are offered in the following branches of engineering:—

- I. Civil Engineering
- II. Mechanical Engineering
- III. Electrical Engineering
- IV. Chemical Engineering

Descriptions of these courses and schedules showing the subjects of instruction included, will be found on succeeding pages.

Summer Schools

There are day and evening summer preparatory schools, conducted by the Educational Department of the Association, and students having entrance conditions, or requiring further preparation for the entrance examinations, may avail themselves of this opportunity to cover the desired work.

Those of our students, who fail to pass in any of their school work, may be permitted to take up the study in the Summer School conducted by the Institute of Technology, provided of course, that Institution is offering such a course. Those students desiring this privilege should consult the Dean, as special permission must be obtained to attend many of the courses.

Physical Training

Those students who desire gymnasium instruction may obtain the same by the payment of the gymnasium fee in ad-

dition to their tuition. This will entitle the student to exercise with the regular classes, as well as to use the gymnasium at other times.

Requirements for Admission

Detailed information in regard to the requirements for admission to the courses of instruction in the School, will be found on succeeding pages. In general, the preparation necessary to enable an applicant to pursue one of the Courses, corresponds with that given by good high schools in their four-years' course.

Application for Admission

An application blank will be found just inside the back cover of this catalog. Fill it out in ink and mail it, together with the required five (5) dollar deposit, to H. W. Geromanos, Dean, 316 Huntington Ave., Boston, Mass.

School Year

The term begins September 14, 1914, and on succeeding years the school year will commence on the second Monday in September. The school exercises are suspended on legal holidays and for one week at Christmas.

Registration

Each applicant for admission to the School is required to fill out an application blank, whereon he states his places of previous education, as well as the names of persons to whom reference may be made in regard to his character and previous training.

A deposit of five (5) dollars is required when the application is filed. Should the applicant be rejected, without being permitted to take the entrance examinations, one half this fee will be returned to him. Should the application be approved, the fee will be retained to cover the cost of his registration, examinations, etc. This fee is non-returnable.

On approval of the application, the applicant is required to fill out an attendance card, blank forms of which will be supplied. He is also required to fill out an application for membership in the Association. A twenty (20) dollar fee, which

is credited as part payment of his tuition, must be paid at this time.

This fee of twenty (20) dollars must be paid before a student will be assigned to a position at practical work, or allowed to attend classes.

Once the applicant has passed the entrance requirements and been accepted by the School, this fee is non-returnable.

An additional thirty (30) dollars is required to be paid before any books, or supplies, are issued to him.

Summing up the foregoing:

When a student applies for admission to the School, he makes a deposit of five dollars, which is not considered as part of the tuition, but is used to cover registration expenses. Of the hundred and ten (110) dollar tuition, twenty (20) dollars must be paid before an applicant will be assigned a position at practical work, and an additional thirty (30) dollars, or in all, fifty dollars must be paid before a student will have books and supplies issued to him.

Attendance

Students are expected to attend all exercises in the subjects they are studying, unless excused by the Dean. With the exception of one hour in the middle of the day, exercises are held, and students are, in general, expected to devote themselves to the work of the school between 9 A.M. and 5 P.M. There are no exercises on Saturday after 1 P.M.

Books and Supplies

The student is furnished with all books, drawing instruments, slide rules, and general supplies, required for his work. This material is loaned to him during the school year, and must be returned in good condition, on demand, or else paid for.

At the commencement of the year, pens, pencils, note books and note book paper, etc., are issued to each student, but none of these minor supplies will be issued again during the year. The cost for additional incidental supplies should not run much over one dollar per year.

Status of Students

The ability of students to continue their courses is determined in part by means of examinations; but regularity of attendance and faithfulness to daily duties are considered equally essential.

Any student failing to make a satisfactory record in either school, or practical work, may be removed from his position in practical work, or from the School.

Examinations

Examinations in all subjects are held at the close of each school year, in May and June, and cover the work done during the year. All students who maintain a year's average of 80% or over, in their daily work and informal examinations, in any subject, may be excused from the final examination in that subject, at the discretion of the instructor in charge, and with the approval of the Dean. When a final examination is taken, the year's rating in the subject is based half on the examination and half on the record of the year's work.

Students will not be admitted to professional work in the several courses without satisfactory records in those previous subjects on which this work especially depends. That is, for illustration, a student cannot take Advanced Surveying until he has completed Elementary Surveying.

Exceptions to this rule may be made in individual cases, after special consideration by the instructor in charge and the Dean.

Reports of Standing

Informal reports in all subjects are sent every two months, and formal reports covering the year's work are sent at the close of each year. These reports are sent to students, and to the parents, or guardians, of the students. Notification will be made to parents, or guardians, in all cases of students advised or required to withdraw, or placed on probation.

Owing to the short school year, it is of vital importance to the student that he get a clear record in all his work each week, and where a student fails to pass in any subject, a notification is sent to his parents, or guardian, to that effect, at the close

of the week in which the failure was recorded, so that we may have the home influence exerted to bring his work up to a higher rating the next week.

Conduct

It is assumed that students come to the School for a serious purpose, and that they will cheerfully conform to such regulations as may from time to time be made. In case of injury to any building, or to any of the furniture, apparatus, or other property of the school, the damage will be charged to the student, or students, known to be immediately concerned; but, if the persons who caused the damage are unknown, the cost of repairing the same may be assessed equally upon all the students of the School.

Students are expected to behave with decorum, to obey the regulations of the School, and to pay due respect to its officers. Conduct inconsistent with the general good order of the School, or persistent neglect of work, if repeated after admonition, may be followed by dismissal, or, in case the offense be a less serious one, the student may be placed upon probation. The student so placed upon probation may be dismissed if guilty of any further offense.

It is the aim so to administer the discipline of the School as to maintain a high standard of integrity and a scrupulous regard for truth. The attempt of any student to present, as his own, any work which he has not performed, or to pass any examination by improper means, is regarded as a most serious offense, and renders the offender liable to immediate expulsion. The aiding and abetting of a student in any dishonesty is also held to be a grave breach of discipline.

REQUIREMENTS FOR GRADUATION

To receive the diploma of the School, the student must have attended the School not less than two years, which must be those immediately preceding his graduation, except as postponement may be specially permitted. He must have completed the prescribed studies of the four years, and must, also, pass final examinations, if required, on subjects pertaining especially to his Course. In addition to this, he must have

completed his period of practical work to the satisfaction of his employer.

The student must, also, prepare a thesis on some subject included in his course of study; or an account of some research made by him; or an original report upon some machine, work of engineering, or industrial plant. This thesis, or design, must be approved by the Dean. Theses are to be written on one side only of paper of good quality, 8 x 10½ inches in size, with an inch margin on each side. Theses must be handed to the Dean not later than the day on which the first annual examination occurs.

All theses, and records of work done in preparation of theses, are the permanent property of the School.

The diploma of the School represents not only the formal completion of the subjects in the selected course of study, but also the attainment of a satisfactory standard of general efficiency. Any student, who does not show in the fourth-year work of his Course, that he has attained such a standard, may be required, before receiving the diploma, to take such additional work as shall test his ability to reach that standard.

No diploma can be given until all dues to the School are discharged.

The diplomas awarded graduates will be signed by both the School authorities and the employers.

Students completing the school course without being engaged in any practical work, will receive a special diploma.

Fees

A fee of five (5) dollars is to be paid when application is filed, as a matriculation fee. This fee is non-returnable, if the applicant is permitted to take the entrance examinations. If he is rejected, without taking the examinations, one half the deposit will be returned.

The tuition fee is \$110 per year, and must be paid as follows:

Twenty dollars at the time of registration

Thirty dollars additional, before receiving any supplies

Thirty dollars December 1

Thirty dollars March 1

One half the year's tuition will be charged any student who attends the School during six school weeks.

The full tuition rate for the year will be charged any student attending the School over nine school weeks.

In case any student is compelled to discontinue attendance at the school, for any reason, after being assigned to practical work, there will be no rebate of any fees paid, under any conditions.

Upper class students whose tuition rate is \$110 shall pay it as follows:

Forty dollars at beginning of fall term

Thirty dollars December 1

Thirty dollars February 1

Ten dollars April 1

Students who were enrolled in the School, when the tuition was increased from \$100 to \$110 per year, will be allowed to complete their course at the same rate of tuition that existed at the time of their entrance.

Such students shall pay their tuition as follows:

Thirty dollars before September 14

Thirty dollars December 1

Twenty dollars February 1

Twenty dollars April 1

Failure to make the required payments on time, renders the student liable to be barred from his classes, until the matter has been adjusted with the Bursar.

This tuition fee includes membership in the Association, as well as the use of all books, drawing supplies, etc., which are required in the school work. Such supplies as are required by the student for his school work, are loaned to him by the School, and must be returned on demand, in good condition, or else paid for.

Increase of Tuition

The tuition of all students entering the School, on and after January 1, 1916, will be \$125 per year.

Those students, who are already members of the School at that time, will be allowed to complete their course at the same rate of tuition that existed at the time of their entrance.

Payments

All payments should be made to Galen D. Light, Bursar.

Make checks payable to Boston Young Men's Christian Association.



CHECKING VOLTMETERS
Head Place Station
Edison Electric Illuminating Company



CHECKING BATTERY AMMETERS
Atlantic Avenue Station
Edison Electric Illuminating Company

Residence

For those students who will not be living at home, there are excellent accommodations, at very moderate rates, in the dormitories that are in our new building. These rooms may be had separately, or in groups with a common reception room, and the price varies from \$1.50, or \$2.00, upwards. As board costs from \$3.50 to \$5.00 a week, a student could get room and board for from \$5.00 a week to \$6.00 per week.

Location

The buildings are located on Huntington Avenue, just beyond Massachusetts Avenue, and are within easy access to the various railroad stations, and the business and residential sections, by electric cars.

Special Students

It is possible for students to enter the School and spend either every week at school, or else every other week at school, without being placed in practical employment. There is no extra charge under these conditions.

A student obtaining a low rating on his entrance examinations, or who may not be eligible to assignment to practical work, for other reasons, may, by special permission, be allowed to attend school either every week or every alternate week, and, if his record for the year justifies it, may be assigned to practical work the following year.

It has been found possible for students to attend school every week and to complete the course in three years. To do this, the student must have had a good high school education and cannot do the practical work in connection with the course.

Socials

In order to provide for the social intercourse of the students, as well as to enable the men in the different divisions to meet one another, socials and entertainments are held monthly for their exclusive enjoyment. An out-door field meet is also held yearly, at the close of the school year, at which time various interclass competitive games are enjoyed.

Vacations

The employers may allow our students one week vacation at Christmas, and two weeks vacation during the summer. They are not paid for this time. Whether a student shall have a full week at Christmas, or not, is at the option of the employer.

Summer Employment

When a student, for good reason, is unable to continue his practical work during the summer, when the school is not in session, it is sometimes possible to get him leave of absence for the summer so that he can return to his employer in the fall. All special arrangements for the summer work must be referred to the Dean.

Probation Period

When, for any reason, it is deemed advisable, the School reserves the right to place any entering student upon a period of probation, extending from one to three months, before placing him at practical work. Whether he shall be placed at work at the end of this time, will be determined by the character of the work that he accomplished during this probationary period.

POST-GRADUATE OPPORTUNITIES

Students of good ability, on completing the Co-Operative Engineering Course, have the opportunity to attend the Massachusetts Institute of Technology, if they care to, and by taking special extra work in the Co-Operative School during their course they could reasonably expect to complete the Technology work and get their degree in two years. Through conference with officials of the Institute, it has been found that those of our courses equivalent to theirs will probably be accepted in place of theirs, and the student given a clear record in such subject, either by passing an examination, or at the discretion of the head of the Department. Since a large number of our courses are covering the same ground as those at the Institute, a capable student should be able at the end of his course to get a clear rating at Technology for at least the

equivalent of two years' work there. This offers a rare opportunity for an ambitious capable young man to get the most valuable kind of an education at small cost.

For further information about the School, write to

H. W. Geromanos, Dean,
316 Huntington Avenue,
Boston, Mass.

REQUIREMENTS FOR ADMISSION

In general, the preparation necessary to enable an applicant to pursue successfully one of the regular courses, corresponds with that afforded by high schools of the better grade, offering a four-year course of study.

Every applicant must furnish references as to his character and ability, and must show cause why he may reasonably be expected to make a success of his course, both in the practical work and at the School. He must be willing and able to work hard, both mentally and physically.

For those unable to carry on the Engineering Courses owing to inadequate preliminary training, it has been found possible to plan special courses, of one, or two years' duration, in the Preparatory School to fit for the Engineering School.

All applicants planning to take the examinations, shall notify the Dean not less than ten days previous to the date of the examinations. For those students who may not be prepared to take the examinations in June, but who desire to work during the summer and then take the examinations in the Fall, arrangements may be made by consultation with the Dean.

Any subjects not passed in the June examinations may be passed at the September examinations.

Applicants for admission to the Co-Operative Engineering School are, in general, required to pass the entrance examinations of the School. Certificates of entrance examinations passed for admission to another similar school of the same, or higher grade, may be accepted in lieu of examinations.

A student obtaining an average of 80%, or over, during his high school course, in the subjects required for admission, may be given credit in those subjects, without examination, upon application to the Dean. Such applications, together with a certificate from his principal, or instructor, stating the work done and the grades received, shall be filed with the Dean, not less than ten days preceding the examination date.

The last page of this catalog is in the form of an application blank. It should be filled out in ink and forwarded, with the required five dollar deposit, to H. W. Geromanos, Dean, 316 Huntington Ave., Boston, Mass.

ADMISSION TO THE FIRST YEAR

The student intending to enter the School should bear in mind that the broader his intellectual training in any direction, and the more extensive his general acquirements, the greater will be the advantages he may expect to gain. The importance of thorough preparation in the subjects set for examination also is great; for the character and the amount of instruction given in the School from the outset, leave little opportunity for one, imperfectly fitted, to make up deficiencies, and render it impossible for him to derive the full benefit from his course, or perhaps even to maintain his standing. The training given in the best high schools will, in general, afford suitable preparation.

The requirements of age and scholarship specified are regarded as a minimum in all ordinary cases, and only exceptional circumstances will justify any relaxation. Parents and guardians, are advised that it is generally for the ultimate advantage of the student not to enter under the age of eighteen years.

ENTRANCE EXAMINATIONS IN BOSTON

Examinations for admission to the first year class will be held at 316 Huntington Avenue on June 11 and 12, and on September 9 and 10, 1914.

Students are advised to attend the June Examinations, if possible, in order that any deficiencies then existing may be made up in September, before entrance.

Examination Fees

Before taking the examination, the applicant must have filed his application, together with the required five dollar deposit. If he gets a clear record in his examinations, he may file his registration cards, together with the twenty dollar registration fee, at any time before school opens. If, however, he wishes to start practical work, he must register before being assigned to a position.

Order of Examinations

Thursday, June 11, 1914

9.45 A.M. to 10.00 A.M.	Registration of Applicants
10.00 A.M. to 12.00 N.	Algebra
1.00 P.M. to 3.00 P.M.	Plane Geometry
3.00 P.M. to 4.00 P.M.	Arithmetic*

Friday, June 12, 1914

10.00 A.M. to 12.00 N.	English
1.00 P.M. to 3.00 P.M.	Physics

SUBJECTS FOR EXAMINATION

To be admitted as a student of the first-year class, the applicant must have attained the age of seventeen years, and must have passed satisfactory examinations in the following subjects:—

Arithmetic*

Elementary Algebra

Plane Geometry

English

Elementary Physics

The examination in Physics is not required, but students not receiving a clear record in it, by examination or otherwise, will be required to take a special course in Physics, in addition to their regular first-year work.

The detailed requirements in the various subjects are as follows:—

Arithmetic

The ordinary arithmetical calculations which should be familiar to all grammar school graduates. The examination will call for a knowledge of:—addition, subtraction, division and multiplication, of whole numbers, decimals, and fractions. The student is also expected to have a reasonable knowledge of percentage computations, as used in common arithmetic, and square root. He will not be called upon to do any work in the computation of interest, either simple, or compound.

Not required in 1914.

Plane Geometry

The usual theorems and constructions of good text-books, including the general properties of plane rectilinear figures; the

*Not required in 1914.

circle and the measurement of angles; similar polygons; areas, regular polygons and the measurement of the circle. The solution of numerous original exercises, including loci problems. Applications to the mensuration of lines and plane surfaces.

Algebra

The four fundamental operations for rational algebraic expressions; factoring, determination of highest common factor and lowest common multiple by factoring; fractions, including complex fractions; ratio and proportion; linear equations, both numerical and literal, containing one, or more, unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and numbers; exponents, including the fractional and negative.

English

The examination in English will be as far as possible a test of the candidate's ability to express himself in writing in a manner at once clear and accurate.

The candidate will be required to write upon subjects familiar to him. His composition should be correct in spelling, punctuation, grammar, idiom and formation of paragraphs, and should be plain and natural in style. He will be judged by how well, rather than by how much he writes.

Physics

The candidate will be expected to be familiar with the fundamental principles of Physics. It is especially desirable that he should have a good knowledge of general mechanics and of the mechanics of solids, liquids and gases. A knowledge of physical hypotheses is comparatively unimportant. Text-book instruction should be supplemented by lecture-room experiments. A sufficiently extended treatment of the subject will be found in any of the principal text-books now in use in secondary schools. Ability to solve simple problems will be expected.

Certificates

A student obtaining an average of 80%, or over, during his high school course, in the subjects required for admission, may

be given credit in those subjects, without examination, upon application to the Dean. Such applications, together with a certificate from his principal, or instructor, stating the work done and the ranks received, shall be filed with the Dean, not less than ten days preceding the examination date.

Conditions

A candidate failing in only one, or two, of the examination subjects, may be admitted with "conditions." A candidate incurring conditions in June must repeat, in September, examinations in those subjects in which he has failed.

In any case of a condition existing after a second examination in a subject, special arrangements must be made with the Dean, before a student will be allowed to attend classes.

Modern Languages

There is no requirement in the modern languages for entrance to the School, and students who desire to take up these subjects during their course, may do so, provided they show the capacity to handle such work in addition to the required subjects.

OUTLINES OF SUBJECTS REQUIRED FOR ENTRANCE

By writing the Dean, prospective applicants may receive a brief outline covering the subjects in Physics and Algebra upon which the Entrance Examinations are based. These outlines are issued in order that the applicant may concentrate his study upon subjects that are essential to the work, and not spread his efforts over too large a field.

COURSES OF STUDY

General Information

The schedules of the various courses are given on the following pages. The first year work of all courses is practically the same, with a few exceptions, which are made because of the need of the student for elementary training in his professional subjects. This is done so that he may gain more from his early practical work, as well as be of more use to his employer, by reason of a better understanding of the duties he may be called upon to perform.

The school year comprises eighteen weeks of class work, and one week of examinations for each division, so by dividing the total hours of class work by eighteen, the number of hours per week in any subject may be readily determined. For example, if mathematics comes ninety hours per year, it will be given five hours per week. Some subjects are given double time, but only extend through half the year. The student is expected to spend from one to two hours in preparation, for every hour given over to class work, in all subjects except Drawing.

The number in parenthesis, following the subject in the "Outlines of Courses," is the number by which that subject is identified in the descriptive matter under "Subjects of Instruction."

The work is so planned that the student will be required to spend from 50 to 60 hours, in preparation and class work, during each school week.

When a student elects a Course, he is required to complete all subjects in that Course, not indicated as "Optional," in order to receive a diploma. No subject is to be dropped, or omitted, without the consent of the Dean.

CIVIL ENGINEERING

The purpose of this course is to give the student a broad education in those subjects which form the basis of all branches of technical education, and a special training in those subjects comprised under the term "Civil Engineering." It is designed to give the student sound training, both theoretical and practical, in the sciences upon which professional practice is based.

Civil Engineering covers such a broad field that no one can become expert in its whole extent. It includes Topographical Engineering, Municipal Engineering, Railroad Engineering, Structural Engineering, and Hydraulic and Sanitary Engineering. It covers land surveying, the building of railroads, harbors, docks and similar structures; the construction of sewers, water works, roads and streets; the design and construction of girders, roofs, trusses, bridges, buildings, walls, foundations and all fixed structures. All of these branches of Engineering rest, however, upon a relatively compact body of principles, and in these principles the students are trained by practice in the class-room, drawing room, the field and the testing laboratory.

The course is designed to prepare the young engineer to take up the work of assisting in the design and construction of structures; to aid in the location and construction of steam and electric railways, sewerage and water supply systems; and to undertake intelligently, supervision of work in the allied fields of mining, architectural, and electrical engineering and general contracting.

COURSES OF STUDY

I. Civil Engineering

	Hours of Exercise
<i>First Year</i>	
Mathematics I (10)	90
Physics I, Lectures and Recitations (20)	72
Physics I, Laboratory (21)	36
Elements of Electricity (126)	27
Descriptive Geometry I (42)	90
Mechanical Drawing (40)	72
Lettering (41)	18
English I (1)	54
Surveying I (50)	36
Surveying I, Fieldwork and Plotting (53)	108
<i>Second Year</i>	
Mathematics II (11)	72
Precision of Measurements (13)	9
Physics II, Lectures and Recitations (22)	54
Physics II, Laboratory (23)	36
Applied Mechanics I (30)	54
Descriptive Geometry II (43)	36
Topographical Drawing (54)	36
Mechanism (90)	27
Practical Electricity I, Lectures and Recitations (134)	36
Practical Electricity I, Laboratory (135)	36
English II (2)	36
Surveying II (52)	36
Surveying II, Fieldwork and Plotting (53)	108
Spherical Trigonometry (12)	9
<i>Third Year</i>	
Applied Mechanics II (31)	60
Railroad Engineering (57)	54
Railroad Engineering, Fieldwork and Drawing (58)	108
Theory of Structures (70)	30
Stereotomy (55)	36
Highway Engineering (56)	18
Theoretical Hydraulics (110)	54
Materials (81)	36
Practical Electricity II, Lectures and Recitations (136)	36
Practical Electricity II, Laboratory (137)	36
Metallurgy of Iron (147)	18
Dynamical and Structural Geology (160)	54
<i>Fourth Year</i>	
Structural Design (73)	108
Applied Mechanics Laboratory (34)	12
Theory of Structures, Bridges and Similar Structures (71)	90
Advanced Structures (72)	36
Advanced Railroad Engineering (59)*	18
Railroad Design (60)	54
Advanced Structures (72)	36
Hydraulic Motors (Optional) (111)	36
Hydraulic and Sanitary Engineering (112)	36
Concrete Construction (80)	36
Foundations (82)	18
Practical Electricity II, Lectures and Recitations (136)	36
Practical Electricity II, Laboratory (137)	36
Thesis	108

*Omitted in 1914-1915.

MECHANICAL ENGINEERING

This course is designed to give a broad foundation in those fundamental subjects which form the basis for all professional engineering practice, and to especially equip the young engineer with a thorough knowledge of the various phases of Mechanical Engineering. The course embraces instruction by text-book, lecture, laboratory and work-shop practice, with special references to the following branches: Steam Engineering, Hydraulic Engineering, Power Plant Design, Machine Design, Applied Electricity, Heat Engineering, and allied fields of the engineering profession.

The course affords training in the methods, and gives practice in the process of Construction, which develops in the student the capacity for thinking along mechanical lines, thus enabling him to base all of his work upon fundamental principles already learned, rather than upon empirical rules. It is the endeavor to give the student a thorough theoretical training, and meanwhile devote sufficient time to the practical work, that he may become a proficient mechanical engineer both in theory, and in practice, in all of the various branches of Mechanical Engineering.

COURSES OF STUDY

II. Mechanical Engineering

<i>First Year</i>	Hours of Exercise
Mathematics I (10)	90
Physics I, Lectures and Recitations (20)	72
Physics I, Laboratory (21)	36
Elements of Electricity (126)	27
Descriptive Geometry I (42)	90
Mechanical Drawing (40)	144
Lettering (41)	18
English I (1)	54
<i>Second Year</i>	
Mathematics II (11)	72
Precision of Measurements (13)	9
Physics II, Lectures and Recitations (22)	54
Physics II, Laboratory (23)	36
Applied Mechanics I (30)	54
Descriptive Geometry II (43)	36
Mechanical Engineering Drawing (91)	144
Mechanism (90)	45
Practical Electricity I (134)	36
Practical Electricity I, Laboratory (135)	36
English II (2)	36
Woodworking and Patternworking (Optional) (102)	54
Foundry Practice (99)	9
<i>Third Year</i>	
Applied Mechanics II (31)	60
Heat Engineering, Thermodynamics (95)	54
Heat Engineering, Boilers (95)	36
Valve Gears (90)	27
Machine Drawing (92)	144
Boiler Drawing (100)	36
Theoretical Hydraulics (110)	54
Materials (81)	36
Practical Electricity II, Lectures and Recitations (136)	36
Practical Electricity II, Laboratory (137)	36
Metallurgy of Iron (147)	18
Machine Work (103)	54
Forging, Chipping and Filing (Optional) (101)	36
<i>Fourth Year</i>	
Applied Mechanics III (33)	36
Applied Mechanics Laboratory (34)	12
Dynamics of Machines (94)	36
Machine Design (93)	144
Engineering Laboratory (97)	72
Hydraulic Motors (111)	36
Power Plant Design (96)	54
Concrete Construction (80)	36
Foundations (82)	18
Refrigeration (Optional) (98)	18
Thesis	108



CLASS IN DYNAMO TESTING
Determining the Characteristics of a Direct Current Shunt Generator



IN THE RESEARCH LABORATORY
A. D. Little Co., Inc., Engineering Chemists
Hydrolyzing Wood Fiber into Alcohol



CLASS IN SURVEY 'G' FIELD WORK
Making a Stadia Survey of Jamaica Pond

ELECTRICAL ENGINEERING

Electrical Engineering having in recent years developed along lines demanding a thorough appreciation of physical theory, as well as a broad working knowledge of Mathematics, it is essential that students planning to take this course should realize the fundamental necessity of obtaining a solid grounding in these subjects upon which to build.

It is not the purpose of the course to attempt the impossible aim of turning out fully trained engineers in the various branches of the science, especially as it is becoming daily more and more differentiated and specialized; but rather to lay a broad and thorough foundation for future progress along the lines of work which may particularly appeal to the individual, by giving him a good working acquaintance with the essential principles, which underly each of the more specialized branches of professional activity. Parallel with the theoretical work runs a carefully planned course of laboratory work which is intended to develop the student's powers of accurate observation of planning work and methods for himself, with due regard to saving of time and precision of results. For more detailed matters, the reader is referred to the description of the several courses and subjects of instruction.

COURSES OF STUDY

III. Electrical Engineering

	Hours of Exercise
<i>First Year</i>	
Mathematics I (10)	90
Descriptive Geometry I (42)	90
Lettering (41)	18
English I (1)	54
Physics I, Lectures and Recitations (20)	72
Physics I, Laboratory (21)	36
Mechanical Drawing (40)	144
Elements of Electricity (126)	27
<i>Second Year</i>	
Mathematics II (11)	72
Precision of Measurements (13)	9
Physics II, Lectures and Recitations (22)	54
Physics II, Laboratory (23)	36
Applied Mechanics I (30)	54
Descriptive Geometry II (43)	36
Mechanical Engineering Drawing (91)	72
Mechanism (90)	36
Direct Current Machinery (128)	18
Direct Current Practice (129)	18
English II (2)	36
Theoretical Electricity (127)	27
Methods of Wiring and National Code (131)	9
Electrical Engineering I, Laboratory and Reports (122A)	72
Woodworking and Patternwork (Optional) (102)	54
<i>Third Year</i>	
Applied Mechanics II (31)	45
Heat Engineering: Thermodynamics (95)	54
Electrical Engineering II, Laboratory and Reports (122 B)	63
Technical Electrical Measurements (130)	18
Machine Drawing (92)	72
Hydraulics (110)	54
Alternating Currents, Lectures, Recitations and Problems (138)	45
Alternating Current Machinery, Lectures, Recitations and Problems (139)	63
Alternating Current Laboratory and Report: (139 A)	45
Forging, Chipping, and Filing (Optional) (101)	54
Construction and Operation of Intercommunicating Telephones (Optional) (124)	6
<i>Fourth Year</i>	
Studies in Electrical Construction (123)	27
Applied Mechanics Laboratory (34)	12
Illumination and Photometry (132)	18
Central Stations (121)	18
Electric Railways (133)	27
Hydraulic Motors (111)	36
Electrical Engineering III, Laboratory and Reports (122 C)	60
Alternating Current Machinery, Lectures and Recitations (139)	36
Alternating Current Machinery, Laboratory and Reports (139 A)	30
Electrical Transmission of Power (120)	18
Metallurgy of Iron (147)	18
Surveying I A (50 A)	36
Engineering Laboratory (97)	36
Machine Work (Optional) (103)	54
Thesis	108

CHEMICAL ENGINEERING

During the great industrial advance of recent years, chemical industry has been in the front rank of progress, and perhaps the most potent reason for this, may be found in the replacement by scientific guidance, of the old rule of thumb methods.

Again, owing to the keenest competition, manufacturers have been compelled to utilize every product of their plants and this has called for skilled chemical knowledge.

The Course in Chemical Engineering has, for its purpose, the training of students competent to take responsible places in the operation of industries based on chemical principles.

During their course, the students are employed in chemical industries, as gas manufacturing plants, chemical engineering companies, etc., so that they not only get an excellent training in the theory of such work at school, but get a thorough familiarity with the technical side of the industry, as well.

The class work includes a training in Inorganic, Analytical, Organic, and Industrial Chemistry, which is accompanied by appropriate laboratory work.

In addition to the foregoing subjects, the student is given a good knowledge of mechanical and electrical subjects, as Drawing, Applied Mechanics, Direct Current Practice, Technical Electrical Measurements, etc., which are taken up in a way to give them especial bearing on the work of the Course.

COURSES OF STUDY

IV. Chemical Engineering

<i>First Year</i>	Hours of Exercise
Mathematics I (10)	90
Physics I, Lectures and Recitations (20)	72
Physics I, Laboratory (21)	36
Elements of Electricity (126)	27
Descriptive Geometry I (42)	90
Mechanical Drawing (40)	54
Lettering (41)	18
English I (1)	54
Inorganic Chemistry, Lectures, Laboratory and Recitations (142)	144
German I (170)	54
 <i>Second Year</i>	
Mathematics II (11)	72
Precision of Measurements (13)	9
Physics II, Lectures and Recitations (22)	54
Physics II, Laboratory (23)	36
Applied Mechanics I (30)	54
Descriptive Geometry II (43)	36
Mechanical Engineering Drawing (91)	72
Mechanism (90)	36
Qualitative Analysis (143)	108
Quantitative Analysis (144)	54
English II (2)	36
German II (171)	54
 <i>Third Year</i>	
Applied Mechanics II (31)	60
Heat Engineering, Thermodynamics (95)	54
Organic Chemistry (145)	36
Organic Chemical Laboratory (145)	90
Machine Drawing (92)	72
Direct Current Practice (129)	18
Theoretical Hydraulics (110)	54
Technical Electrical Measurements (130)	18
Electrical Engineering Laboratory I (122 A)	72
 <i>Fourth Year</i>	
Theoretical Chemistry (149)	54
Applied Mechanics Laboratory (34)	12
Industrial Chemistry (146)	54
Industrial Chemical Laboratory (146 A)	108
Organic Chemistry (145)	36
Organic Chemical Laboratory (145)	90
Engineering Laboratory (97)	36
Heat Measurements (24)	18
Thesis	108

SUBJECTS OF INSTRUCTION

Instruction is given by lectures and recitations, and by practical exercises in the field, the laboratories, and the drawing-rooms. A great value is set upon the educational effect of these exercises, and they form the foundation of each of the four Courses. Text-books are used in many subjects, but not in all. In many branches, the instruction given differs widely from available text-books; and, in most of such cases, notes on the lectures and laboratory work are issued, and are furnished to the students. Besides oral examinations in connection with the ordinary exercises, written examinations are held from time to time. At the close of the year, in May and June, general examinations are held.

In the following pages will be found a more or less detailed statement of the scope, as well as the method of instruction, of the subjects offered in the various Courses. The subjects are classified, as far as possible, related studies being arranged in sequence.

The subjects are numbered, or lettered and numbered, for convenience of reference in consulting the various Course Schedules. As the total number of hours per term devoted to a subject sometimes varies in different Courses, these hours are not in every case given in connection with the following descriptions.

The requisites for preparation, include not only the subjects specified by number, but also those required as a preparation for them. The reason for this is that to properly carry on the more advanced subjects, the student must have become proficient in all subjects necessary for a clear comprehension of the last subject. Some studies specified as being required in preparation, may be taken simultaneously. The student must complete such subjects before starting on more advanced work.

By careful consideration of the Course Schedules, in connection with the following Description of Subjects, the appli-

cant for a special Course may select, for the earlier part of that Course, such subjects as will enable him to pursue later those more advanced subjects which he may particularly desire.

Applications for exception, for sufficient causes, from the required preparation, as stated in connection with each subject described below, will always be considered by the Dean.

The topics, included in the list which follows, are subject to change at any time by action of the School authorities.

SYNOPSIS OF COURSES

1. English I.

This is a course in the principles of composition and letter writing. Special attention is given to spelling, punctuation and grammar.

The chief object of the work is to enable the student to write correct, lucid and easy business English.

2. English II.

PREPARATION: 1.

This Course is a continuation of English I and is devoted to writing business letters, to descriptions of processes and machinery, and to all other possible means of enabling the student to express himself with accuracy and precision, both orally and in writing.

10. Mathematics I.

PREPARATION: ALGEBRA, GEOMETRY.

Variation, logarithms, slide rule, exponential equations, the uses of formulas in Physics and Engineering.

Trigonometry, including circular measure, co-ordinates, trigonometric ratios, formulas, law of sines, law of cosines, solution of right and oblique triangles, applications to problems in Physics and Engineering, Elements of Spherical Trigonometry.

11. Mathematics II.

PREPARATION: 10.

Co-ordinates, plotting of functions, interpolation, the straight line, curves represented by various equations, graphic solution of equations, determination of laws from the data of exper-

iments. Rate of increase, differentiation, determination of maxima and minima by differentiation, integration, definite integrals, determination of mean value, area and volume by integration, center of gravity, moment of inertia, partial differentiation.

12. Spherical Trigonometry (Required in Course 1).

PREPARATION: 10.

This course consists of nine recitations during the first part of the second year. A study is made of the proofs of formulas of right and oblique spherical triangles, and their application to surveying and other engineering problems.

13. Precision of Measurements.

PREPARATION: 10.

This course, which is required of all students in the second half of the second year, comprises a thorough discussion of the fundamentals of the Theory of Measurements, including a study of the Sources of Error, the Best Representative Value of the result of a series of measurements, the determination of the several Precision Measures of the result of one's work, the converse problem of how best to proceed in order to reach a given degree of precision, and a thorough consideration of the proper use of Significant Figures. The text-book is Goodwin's Notes on Precision of Measurements.

20. Physics I.

The subjects considered are general mechanics, molecular mechanics, wave-motion and optics, which topics are discussed both mathematically and experimentally. It is the purpose of the course to lay a thorough foundation for subsequent study of experimental, and technical physics. Hence it is planned with immediate reference to familiarizing the pupil with the fundamental principles of the science. The lectures are illustrated by suitable experiments.

21. Physical Laboratory I.

PREPARATION: 20.

A Course of experimental exercises in the first year, laid out individually for each student. The experiments are correlated, so far as practical, with the lecture and class-room work,

the first year being devoted to experiments in mechanics. The use of the various instruments of precision is taught, as far as may be, in connection with experiments, each of which illustrates some different method, or principle. The experiments relate to the mechanics of solids, liquids, and gases.

22. Physics II.

PREPARATION: 20.

A Course of experimental lectures which is a continuation of Physics 1. In this work the student completes the study of physics started in Physics 1.

23. Physical Laboratory II.

PREPARATION: 22.

A series of experiments in the second year, correlated as far as practicable with the lecture course. The experiments in Optics include the use of a compound microscope, the determination of the focal length of lenses, gas photometry, indices of refraction, and elementary spectrum analysis. All work is strictly quantitative, and the attention of the student is especially directed to the precision discussion of his results.

24. Heat Measurements.

PREPARATION: 22.

A Course in which is studied the various methods of measuring high temperatures by pyrometric methods. The experimental work includes the use of the thermo-electric, calorimetric, and electric resistance, pyrometers, together with selected experiments giving instruction in the use of Seger Cones, heat treatment of steel, tempering, etc.

30. Applied Mechanics I.

PREPARATION: 10, 11, 20, 22.

The Course comprises a study of statics, consisting of the general methods and applications of statics, including the determination of the reactions, stresses in frames; of distributed forces, center of gravity; of moment of inertia, radius of gyration of plane areas and solids, including principal axes and principal moments of inertia; of kinematics and dynamics, including the equations for uniform and varying rectilinear and curvilinear motion, centrifugal force, unresisted projectile,

pendulum, harmonic motion, rotation, combined rotation and translation, momentum and angular momentum, center of percussion, impact, work, power and kinetic energy.

31. Applied Mechanics II.

PREPARATION: 30.

This Course comprises a study of the strength of materials, mathematically treated, including the stresses and strains in bodies subjected to tension, to compression and to shearing; common theory of beams, with thorough discussion of the distribution of stresses, shearing forces, bending moments, slopes and deflections.

A study is also made of the strength of columns, shafts and springs.

32. Applied Mechanics II A.

PREPARATION: 30.

A brief Course covering the subjects treated in Applied Mechanics II, but in a shorter time.

Required in Course III.

33. Applied Mechanics III.

PREPARATION: 31.

A Course treating of the laws of friction, including a study of the distribution of friction on shaft journals and pivots; also a study of the transmission of power by belting and by ropes, and of the friction reducing power of lubricating oils. A study is also made of the continuous girder, so planned as to apply to beams, and applications of the principles of Mechanics and of the Strength of Materials to the design of other forms of simple structures.

34. Applied Mechanics Laboratory.

PREPARATION: 31.

The tests made by the students in the Applied Mechanics Laboratory include tests to determine the modulus of elasticity, limit of elasticity, yield point and tensile strength of steel bars; tests of the deflection and of the transverse strength of a wooden beam subjected to a transverse load; tests to determine the modulus of elasticity and tensile strength of wire; tests on cement mortars, including practice in laboratory methods.

40. Mechanical Drawing.

The Course extends through the first year. The instruction in Mechanical Drawing relates to the drawing instruments and materials, instrumental constructions and the drawing of irregular curves, tracing in ink, conventions, lettering, dimensioning and working methods. The work includes several drawings of machine details.

41. Lettering.

The work consists of letter drawing and stroke lettering for working drawings. The instruction is given by short lectures on the principles and processes of freehand drawing, and by individual criticism. The latter part of the course is devoted to further work in letter drawing and stroke rendering, and the construction of title designing.

42. Descriptive Geometry I.

The Course covers the simpler problems on the point, line and plane and various constructions in the projection of solids, including sections and developments.

In the latter half of the course, the problems on the line and plane are completed, and the projection of solids is continued through the intersection of solids bounded by plane faces. Isometric drawings and several practical applications are given.

43. Descriptive Geometry II.

PREPARATION: 42.

The Course is a continuation of Descriptive Geometry I, and deals with single and double curved surfaces; their intersection by oblique planes, tangent planes, penetrations, development, and so forth.

50. Surveying I.

PREPARATION: 10, 11.

This Course consists of two lectures, or recitations, per week during the first year. The student is taught the theory of the various instruments used in plane surveying, the methods of carrying out various surveys, and the application of contour maps to the solution of problems of drainage, road location, landscape engineering, etc. The text-book used is The

Principles and Practice of Surveying by Profs. Breed and Hosmer, Vol. I.

50A. Surveying I A.

This is a brief Course for students taking Courses II and III, to give them instruction in the essential principles of surveying practice.

51. Surveying I (Fieldwork and Plotting).

PREPARATION: 50.

This Course is taken simultaneously with Surveying I, and consists of six hours of exercise per week throughout the year. The student is taught the use of the chain, tape, compass, transit, and various forms of leveling instruments. The work in the drawing room consists in making the computations which arise in the work of a surveyor, and in making scale drawings by the methods in common use.

52. Surveying II.

PREPARATION: 50, 51, 12.

This Course is a continuation of Surveying I, and consists of two lectures, or recitations, per week throughout the second year. The student is taught the theory of the stadia and plane table in topographic surveying, the methods of making astronomical observations, and of conducting city and photographic surveys. The text-books used are The Principles and Practice of Surveying by Profs. Breed and Hosmer, Vols. I and II.

53. Surveying II (Fieldwork and Plotting).

PREPARATION: 52.

This Course is taken simultaneously with Surveying II and consists of six hours of exercise per week throughout the second year. A stadia survey is first made and later a topographical map made from the notes taken in the field. The practice of plane table surveying, the determination of elevations by barometer, and the conduct of photographic surveys are also studied.

54. Topographical Drawing.

PREPARATION: 50, 52.

This Course consists of two hours of exercise per week throughout the year. A study is made of the different topographical

signs used on surveying maps, both in pen and ink and in wash color. Each student is required to make a number of plates of each kind of topography, and to become reasonably proficient in the making of topographical maps.

55. Stereotomy.

PREPARATION: 40, 42, 43.

This Course consists of three hours of exercise per week throughout the year. The student studies the applications of descriptive geometry to the making of drawings for masonry structures, such as intersecting arches and walls, abutments, piers and culverts. The text-book is a set of specially prepared notes on Stereotomy.

56. Highway Engineering.

PREPARATION: 57.

This Course consists of one lecture, or recitation, a week throughout the year. A study is made of the principles governing the location, construction, and maintenance of roads, and the construction and maintenance of the various kinds of pavements for city streets. The text-book used is Baker's work on Roads and Pavements.

57. Railroad Engineering.

PREPARATION: 50, 51, 58.

This Course consists of three hours of exercise a week throughout the year. A study is made of the mathematics of the various curves used in engineering, with their application to the location of railroads, highways, sewers, pipe lines, etc. The easement curve is also studied, and the various methods of staking out and computing earthwork. The text-books used are Prof. Allen's Railroad Curves and Earthwork, and his Field and Office Tables.

58. Railroad Fieldwork and Drawing.

PREPARATION: 57.

This Course consists of six hours of exercise a week throughout the year. A reconnoissance is first made of a railroad about a mile and a half in length, followed by a preliminary survey with transit and level for the determination of contours, as a basis for fixing the location survey. All this work follows modern practice in laying out railroads. The greater

part of the fieldwork is devoted to a systematic drill in running in curves of various kinds, including transition curves, and in staking out fieldwork. The drawing consists in plotting up the preliminary survey of the railroad surveyed.

59. Advanced Railroad Engineering.

PREPARATION: 58.

This Course consists of one exercise a week throughout the year. The following subjects are treated: maintenance of way, the economics of railroad location, including the study of train resistance and the influence of grade, distance, rise and fall, and curvature; rolling stock and motive power brakes, signals, yards and tunnels, and street railroads. Each student is given an individual problem on the design of an interlocking plant, and also problems on railroad practice. The text-books are Tratman's Track and Trackwork and also neostyled notes.

60. Railroad Design.

PREPARATION: 59.

This Course consists of three hours a week in the drawing room throughout the fourth year. The design of freight yards and terminals is studied, and each student is required to solve individual problems on practical railroad design.

70. Theory of Structures.

PREPARATION: 31.

This is a Course of thirty exercises in the third year, devoted to class and drawing-room work in studying the loads, reactions, shears and moments acting upon structures of various kinds as roofs and bridges. A thorough study is also made of the various functions of the influence line and the methods used to determine the position of moving loads to produce maximum shears and moments on bridges. The text-book used is Prof. Spofford's Theory of Structures.

71. Theory of Structures, Bridges and Similar Structures.

PREPARATION: 70.

This Course treats of the computation and design of structures of wood, steel and masonry, by analytical and by graphical methods. The subjects considered are: the plate girder, roof and bridge trusses of various forms, trestles of wood and

steel, and arches of metal, stone, and concrete. The object is to train the student thoroughly in the application of the principles of mechanics to the design of structures. The text-book used is Prof. Spofford's Theory of Structures.

72. Advanced Structures.

PREPARATION: 71.

This Course treats of the computation and design of retaining walls, masonry dams, masonry arches, continuous girders, movable bridges and skeleton frames for buildings. Only the more simple cases are considered.

73. Structural Design.

PREPARATION: 72.

A Course of six hours per week, throughout the fourth year, in which the students are instructed in the design of structures of wood, stone and metal. Each student is given a set of data, and is required to perform all the computations and to make designs and working drawings for several structures, such as a masonry dam, a plate girder bridge, and a wooden roof truss. His work is criticized as it progresses.

80. Concrete Construction.

PREPARATION: 72.

A Course consisting of lectures and drafting, in which instruction is given in the theoretical and practical principles involved in the design of structures of plain and reinforced concrete. The Course includes a study of the simple reinforced concrete beam, the design of slabs, T-beams, columns and footings. Instruction is given by means of lectures and text-books, in conjunction with which each student is given practical problems in design to be worked out in the drawing room.

81. Materials.

PREPARATION: 72.

This Course consists of two lectures, or recitations, per week throughout the third year, in the study of the methods of manufacturing, properties and strength of various materials used by the engineer, such as brick, cement, concrete, iron and steel. A study is also made of the properties of wood and stone. The text-book used is Johnson's The Materials of Construction.

82. Foundations.

PREPARATION: 71.

A Course of eighteen lectures during the fourth year. The subjects treated in this Course are as follows: Building stones and concrete, bearing power of different kinds of soil, examination of the site, designing the footings, whether of masonry, or of steel and concrete, independent piers, pile foundations, compressed air processes, freezing processes, retaining walls, together with some details of buildings for industrial purposes, constructed of steel, or of reinforced concrete. Baker's Masonry Construction is used as a text-book.

90. Mechanism and Valve-Gears.

PREPARATION: 11, 40, 42.

This Course includes a systematic study, not only of the motions and forms of the various mechanisms occurring in machines, and the manner of supporting and guiding the parts, independently of their strength, but also of the design of gear-teeth. The course also includes the theory and practice of designing valve-gears for steam-engines, including the plain slide valve, link motions, radial valve-gears, double valves and drop cut-off valves.

91. Mechanical Engineering Drawing.

PREPARATION: 40, 90.

The construction includes the drawing of simple machine details, such as bolts and nuts, screws, springs, keys, flanges, pipe fittings, etc.; teaching systems of dimensioning, conventional representations, and blue-printing. The latter part of the work consists of drawing, illustrating the class-room work in connection with the courses in Mechanism and Valve-gears, including the design of cams, gear-teeth, slide-valves, double valves, the Stephenson link, etc.

92. Machine Drawing.

PREPARATION: 91.

The aim of the Course is to teach the proper way of making the necessary dimensioned drawings for use in practice, good shop systems being adopted. The instruction includes the making of working detail and assembly drawings of machinery from measurements.

93. Machine Design.

PREPARATION: 91, 31.

The main object of the Course is the application of principles already learned to the solution of problems in design. Each student makes a number of complete designs, such as a boiler, a large shaft with pulleys and gears, a set of couplings, a power shear, geared pump, etc. For each design the constructive details are carefully discussed; each student then makes all the necessary calculations to determine the dimensions of every part, and finally he completes the working drawings. The scope of the designs is such as to include most of the elementary principles of design, and yet is sufficiently limited to enable the student to complete every detail, as it is believed that only by such thorough work can real benefit be obtained.

94. Dynamics of Machines.

PREPARATION: 90, 93.

The Course in Dynamics of Machines includes a number of the principal applications of Dynamics to moving machinery such as governors, fly-wheels, the action of the reciprocating parts of the steam-engine, running balance, whirling speed of shafts, etc. The work is supplemented by a course in drafting.

95. Heat Engineering: Thermodynamics and Boilers.

PREPARATION: 10, 11, 31.

It includes a study of the principles of thermodynamics; a discussion of the properties of gases, saturated and superheated vapors, especially of air and steam; of the flow of fluids through orifices, nozzles, pipes and meters, a discussion of the action of the steam injector; a study of the various cycles of the hot air, internal combustion and steam engines, of the turbine, air compressor and refrigerator systems. These engineering applications are treated from the physical, analytical and graphical points of view, so as to give the student a good foundation in the principles of thermodynamics, in the solution of actual heat engineering problems. The Course also includes a study of the simple, compound and multiple expansion steam engine, of the different types of gas engines, of the gas producer, of compressed air and refrigerator machines, and the methods of testing such machines.

The latter part of the Course includes a study of the various types of steam boilers and the different kinds of power plants.

96. Power Plant Design.

PREPARATION: 31, 93, 95.

The Course consists largely of drawing-room work and calculations, with such lectures as may be needed from time to time. The work of the Course consists in making the working drawings necessary to show the location of boilers, engines, auxiliaries, piping, coal pockets, etc., for a power house, and also drawings and calculations of some of the details.

97. Engineering Laboratory.

PREPARATION: 95.

This Course consists of exercises and tests upon the various forms of appliances in use in the power plant, such as:

- Boiler Test
- Steam Engine Testing
- Steam Turbine Testing
- Fans and Blowers
- Pumps—Centrifugal and Duplex
- Condensers
- Feed Water Heaters
- Flue Gas Analysis

98. Refrigeration.

PREPARATION: 95.

The Course covers a study of the principles underlying refrigeration processes, together with a discussion of the properties of various refrigerants and the common types of refrigerating machines and systems. In connection with the work, visits are made to plants where artificial refrigeration is used.

99. Foundry Practice.

A lecture Course dealing with coring, ramming, venting, facing, spruing, use of risers, etc., as used in flask moulding. Various forms of moulding machines, as power squeezer, hinged, and turn over are studied. Foundry appliances for pouring are discussed.

100. Boiler Design and Drawing.

PREPARATION: 95.

This Course is devoted to a consideration of the most modern methods of boiler designing and construction, and in connection with the lecture Course, the student is required to make drawings from specifications, illustrating the principles of the design and also the details of a modern boiler.

101. Forging, Chipping and Filing.

This Course consists of one two-hour exercise per week, or its equivalent. In the forging work, the student is instructed in the building and care of fires, heating, drawing, bending, upsetting and welding.

The exercises in Chipping and Filing give instruction about the various tools and files used, and then the student is given practice in their use by various problems in chipping chamfers, keyways, etc.; and then in filing problems, as parallel surfaces, filing to template, slide and drive fits, etc.

102. Wood-working and Pattern Work.

This is a Course designed to give students facility in the common operations of carpentering and cabinet work, together with the use and care of wood working machinery, as lathes, saws, planers, etc. The Course includes instruction in Wood-turning having special application to Pattern-work, an illustrated discussion of the principles of moulding, to explain clearly and show reasons for "Draft" on patterns and methods of allowing it, instruction in the use and making of core-boxes, and methods of building up patterns.

103. Machine Work.

This Course is to train students in the common operations of metal working, as chipping and filing, forging, and machine work, as that done on lathes, drill presses, shapers and milling machines.

110. Theoretical Hydraulics.

PREPARATION: 31.

A Course of three exercises per week during the third year, with the solution of numerous problems, covering the principles of liquid pressure, the flow of water through orifices and

open channels, also through orifices and nozzles, and the losses from friction and other sources. Russell's Hydraulics is used as a text-book.

111. Hydraulic Motors.

PREPARATION: 110.

A series of exercises, mainly recitations, based upon a text-book, so as to embrace the laws of flow in open channels, and of the dynamic pressure and work of water flowing over curved surfaces. The time is principally given, however, to a study of impulse wheels and reaction turbines, with reference to their proper construction, regulation and testing, and to the various sources of loss of energy in their operation.

112. Hydraulic and Sanitary Engineering.

PREPARATION: 110.

This Course treats of the drainage of lands, together with a Course in irrigation, in which are studied the constructions and methods employed in this and other countries, including the arrangement and proportioning of canals, distributaries, falls, regulators and other special works and modes of applying water to the soil. The subject of water supply is taken up, and embraces the study of the quantity of water required for city and town supplies, estimation of the yield from drainage basins, stream flow and ground water flow, and computations to determine the necessary storage to insure a given supply. The student is instructed in the use of hydraulic diagrams and the various methods used in stream gaging. The text-books used are Wilson's Irrigation Engineering, and Swan and Horton's Hydraulic Diagrams.

120. Electrical Transmission of Power.

PREPARATION: 128, 139.

This Course is devoted to a thorough study of the design and construction of modern high tension transmission lines. It is in two sub-divisions, the first dealing with the electrical characteristics of the line, such as: potentials used, size and spacing of conductors, inductive and capacity reactance, skin effect, coronal loss, effect of harmonics, conditions of resonance, effect of high tension lines on neighboring circuits, etc.; the second, covering the parallel problems of rights of way, loca-

tion of poles, towers and conduits, insulation and insulating devices, protective devices against lightning, flash overs, etc., and, in brief, a discussion of the problem of material realization of the line, as previously planned and calculated.

121. Central Stations.

PREPARATION: 111, 95, 128, 139.

This Course is given to a consideration of the central station for the production of electrical power, by both Steam and Hydraulic prime movers. Very little time is given to the consideration of either steam engines, steam or hydraulic turbines, or electric generators, transformers, etc. The time is taken by a careful discussion of the problems of development of a water power, and location of a steam plant, probable field for consumption of power developed, organization of the plant, design, etc. Particular attention is given to the problems of control, protection of apparatus, and switchboard devices. The Course is in the form of lectures with free use of published descriptions of existing plants, collateral reading, etc.

122 A. Electrical Engineering I, Laboratory and Reports.

PREPARATION: 126, 128.

This Course of exercises is given throughout the second year, and is devoted to a carefully selected series of experiments, intended to exemplify in the simplest manner the use of the voltmeter, ammeter and wattmeter, on the one hand, and on the other, a series of experiments illustrative of the principles developed in the courses on Direct Current Machines and Direct Current Practice. The purpose of this Course being, in part, to develop correct methods of work, it is intended that practically the whole of the preparatory work and working up of results shall be done in the laboratory, under guidance of the instructor, so far as necessary.

122 B. Electrical Engineering II, Laboratory and Reports.

PREPARATION: 122 A.

In this Course there are two lines of work pursued, first a set of experiments involving the use of instruments and the making of measurements, such as Specific Resistance, Insulation Resistance, Conductivity, use of the Cary Foster Bridge, Hoopes Bridge, Potentiometer, for the calibration of volt-

meters, and ammeters, etc. All through, particular stress is laid on the correct use of apparatus and methods, and precision methods are enforced throughout.

The second line of work is a continuation of the work in No. 122 A, the experiments being in some cases repeated, but the work being pursued now from the quantitative, rather than the qualitative, side. Thus, where in No. 122 A the Prony brake was used merely as a means for loading a motor and observing its action under load, it is here used as a measuring device in obtaining the motor efficiency and its errors and necessary corrections, as such, are studied.

122 C. Electrical Engineering III, Laboratory and Reports.

PREPARATION: 122 B.

This Course is given over to a series of experiments involving advanced Electrical Testing, and in it the student is thrown entirely upon his own resources, a desired result is stated to him, and he is required to plan out his own method, settle upon the apparatus needed, solve his precision requirements, calibrate his instruments, if necessary, and finally turn in a detailed report covering all phases of his work.

123. Studies in Electrical Construction.

PREPARATION: 120, 121.

This Course, which is given in connection with No. 120 and No. 121 consists of visits to plants, manufactories, etc., so far as possible, and written papers by the students upon the various questions involved, together with the reading of the same and their discussion by the class.

124. Intercommunicating Telephones.

PREPARATION: 126.

A Course of lectures in the construction, operation and maintenance of factory intercommunicating telephone sets.

126. Elements of Electricity.

PREPARATION: 10, 20.

This Course of 27 experimental lectures is taken by all students of the School during the first year. In it are discussed the fundamental principles of Magnetism, Electro-statics and Electro-kinetics, the subjects being discussed from the view

point of the most recent hypotheses regarding the nature of Electricity and its modes of manifestation. The text-book used is Kimball's Physics.

127. Theoretical Electricity.

PREPARATION: 126, 128, 129.

This Course, taken during the second year, covers such subjects as the comparison of the Electrostatic and Electro-magnetic systems of measurement, the determination of the absolute units of potential difference, current, and resistance, with their relationship to the various International Units, and other similar matters; a consideration of the transfer of electricity through solid, liquid and gaseous conductors, concluding with a discussion of the Electronic Theory. No one text-book is used.

128. Direct Current Machinery.

PREPARATION: 126, 127.

This Course, which runs parallel with No. 127, returns to the starting point of the inducing of an Electromotive force by motion of a conductor in a magnetic field, and discusses in detail the theory of direct current generators and motors, armature winding, characteristic curves, etc. The text-book is Franklin and Esty; Direct Current Machinery.

129. Direct Current Practice.

PREPARATION: 128.

In this Course, which follows immediately after No. 128, requiring it as preparation, is given some detailed study of the operation of direct current apparatus, the Edison 3-wire system of distribution, storage batteries, and the more important industrial applications of direct current power.

130. Technical Electrical Measurements.

PREPARATION: 128, 129.

This Course, given in the third year, is intended to familiarize the student with the principle types of electrical measuring instruments used in testing, their manner of use, sources of error and necessary precautions to be taken, as well as the leading methods of measuring with precision, the various electrical quantities as,—Resistance, Current, Electromotive force, Capacity, Inductance, Conductivity, etc.

131. Wiring and the National Code.

PREPARATION: 126.

This Course does not pretend at all to teach the student so called "Practical Wiring," but is intended to explain the principles governing the wiring of buildings, to illustrate the leading types of fittings used, and to give a careful survey of the requirements of the National Electrical Code, as promulgated by the Electrical Committee of the National Fire Protection Association, and adopted into their municipal law by all the leading cities and towns of the United States and Canada.

132. Illumination and Photometry.

PREPARATION: 20.

A Course of lectures dealing with the application of electricity to lighting, the principles of illumination, and the laboratory measurement of the various quantities concerned. The text-book used is Wickenden's Illumination and Photometry.

133. Electric Railways.

PREPARATION: 128, 129, 139.

A Course of lectures, including a discussion of the general problem of supplanting steam with electric traction, followed by a discussion of the principle systems of electric traction, namely, Direct Current, high and low voltage, Single Phase Alternating Current systems and Three Phase Alternating Current systems, and a study of the construction, equipment, and cost of operation of existing systems.

134. Practical Electricity I.

PREPARATION: 10, 20, 126.

This Course is given to all students in the Civil and the Mechanical Engineering Courses. The principles of electricity and magnetism discussed in Elementary Electricity are applied in this Course to the solution of practical problems of the two and three wire direct current systems, and to the study of direct current generators and motors. The student will also be instructed in wiring, together with the rules of the National Electrical Code.

135. Practical Electrical Laboratory I.

PREPARATION: 134.

A series of twelve practical experiments illustrating and depending on the problems and principles given in Practical Electricity I. Elementary tests on direct current machines.

136. Practical Electricity II.

PREPARATION: 134, 135.

This is a continuation of Practical Electricity I. The first part of the year will be devoted to a study of storage batteries, photometry, and the general principles of Alternating Current, series and parallel circuits. The last half of the year will be devoted to a study of the various types of Alternating Current Machinery and the application to present day conditions.

137. Practical Electrical Laboratory II.

PREPARATION: 136.

Twelve experiments on the testing of electrical machinery, both direct current and alternating current, also photometry of incandescent lamps.

138. Alternating Currents.

PREPARATION: 128, 129.

This Course concerns itself with the general theory of alternating current circuits, and the application of these principles to various engineering problems. In connection with the work, considerable importance is attached to the solution of problems selected with reference to their engineering application.

139. Alternating Current Machinery.

PREPARATION: 138.

This Course of lectures, recitations and problems, is devoted to a careful discussion of the various types of alternating current machinery for the generation, transmission and distribution of power. The special properties of each machine are considered for the machine as a unit, and when it is used as a part of any electrical system; some of the general considerations concerning long-distance power transmission are also included.

139A. Alternating Current Laboratory.

PREPARATION: 138, 139.

The work includes such tests as efficiency, heating, regulation and determination of characteristics for alternating current machinery. The work in the laboratory is supplemented by conferences.

140. Chemistry E I.

This is an experimental lecture Course covering chemical practice as applied to engineering work. It treats of the gases used in the arts, as hydrogen, oxygen, acetylene, etc.; their preparation, properties and uses, as well as the oxyhydrogen blow pipe, oxy-acetylene blast, etc. Paints, concrete, alloys, corrosion and its preventives, are also dealt with. In addition to this, the work takes up oils, fuels, fuel gases, explosives, glass, mineral insulators, the commonly used acids and bases, etc. The consideration is taken up from the engineer's standpoint, rather than the chemist's.

141. Chemistry E II.

PREPARATION: 140.

This is a continuation of Chemistry E I, in which the consideration of the various subjects is concluded.

142. Inorganic Chemistry.

PREPARATION: 10, 20.

The fundamental principles of the science are taught in connection with the descriptive chemistry of the non-metallic elements. The lectures are designed to precede the work of the laboratory, in which the students are expected to verify and illustrate the principles and facts which have been discussed in the lecture room. Careful manipulation, thoroughness in observation, accuracy in arriving at conclusions, and neatness in note-taking, are required of each student. The Course lays the necessary foundation for subsequent chemical study.

143. Qualitative Analysis.

PREPARATION: 142.

A practical Course in qualitative analysis for the separation and identification of the common metallic elements and the acids. Each student is also required to make a complete and accurate analysis of various mixtures, alloys and chemicals

used in manufacturing. The laboratory work is supplemented by a course of lectures and conferences, devoted to a general study of the properties of the common metals and their compounds.

144. Quantitative Analysis.

PREPARATION: 142, 143.

A Course in gravimetric and volumetric analysis. Special attention is given to accurate manipulation, the preparation of standard solutions, the calibration of instruments, and to the principles of stoichiometry. The laboratory work is supplemented by a course of lectures and conferences.

145. Organic Chemistry.

PREPARATION: 144.

A Course devoted to lectures, conferences and laboratory work on the principles of organic chemistry, as illustrated by the methane and benzene derivatives.

The student is required to prepare, in the laboratory, a number of organic compounds, selected to show the characteristic reactions, and to give training in the practical separation and purification of organic substances. After the synthetic work, the students are given a practical course in organic analysis.

146. Industrial Chemistry.

PREPARATION: 143, 144, 145.

This Course consists of a series of lectures and recitations upon the more important technical chemical processes, including those of Metallurgy. Much attention is given to the general operations common to many industries, such as crushing, grinding, lixiviation, filtration, evaporation, distillation, crystallization, etc., and to the details of various types of apparatus used for carrying on these processes. Some of the more important manufacturing industries, such as the production of alkali, fertilizers, glass, pigments, cement, soap, explosives, paper, as well as wood distillation, the refining of petroleum, etc., are also considered in detail.

146 A. Industrial Chemical Laboratory.

PREPARATION: 146.

A Course in the quantitative study of the preparation and purification of some chemical product, selected as a type of reac-

tion of industrial importance. The processes employed are carefully controlled and the final product is analyzed to determine its purity. When the work is completed, a careful detailed report of the whole process is made and discussed in class.

147. Metallurgy of Iron.

A series of lectures taking up a general consideration of the Metallurgy of Iron and Steel. The introductory part is devoted to a discussion of the physical and chemical properties, and the constitution of cast iron, wrought iron and steel. This is followed by a more extended treatment of the production of cast iron, wrought iron, Bessemer, open-hearth, cement and crucible steel, and of foundry work. In the discussion of the different processes, principles of manufacture are made prominent. The heat treatment of steel and alloy steels is gone into in detail.

148. Technical Analysis.

PREPARATION: 145.

A Course devoted to the following:—

Analysis of gases.

Analysis of oils, mineral and vegetable.

The origin, manufacture, properties, uses and analysis of the various fuels, and the determination of the heat value of fuels by the use of a calorimetric bomb.

149. Theoretical Chemistry.

PREPARATION: 142, 143, 144.

In this Course the more important principles of Theoretical Chemistry are considered; but these are treated with great thoroughness and are illustrated by applying them to a large variety of problems. The principles are further illustrated by lecture experiments. During the Course the following subjects are considered: pressure volume relations of gases and solutions, derivation of molecular and atomic weights, conductivity of solutions, ionic theory and mass action law, effect of temperature on chemical equilibrium, the laws of energy with reference to the production of heat and work, the electro-motive force of voltaic cells and other electro-chemical topics.

160. Dynamical and Structural Geology.

This Course treats of earth movements and the various terrestrial applications of solar energy. The more important geological processes, erosion, sedimentation, deformation and eruption are taken up and discussed.

The latter part of the Course is devoted to lectures on the broader structural features of the earth's crust and the application of the principles of structural geology to practical engineering problems.

161. Lithology.

This Course is a laboratory study of the rock-forming minerals and the more common rocks.

170. German I.

This Course is planned to give the student a knowledge of German grammar, as well as a working vocabulary of scientific terms. During the Course, easy scientific reading is begun.

171. German II.

PREPARATION: 170.

A continuation of German I, in which the student is given full opportunity to extend his vocabulary of technical words, as well as to become familiar with technical books and scientific articles in the current German periodicals.

EQUIPMENT

The School is now housed in the new building of the Association, and has very exceptionally equipped quarters for carrying on the work of the Engineering Courses.

MECHANICAL DEPARTMENT

Mechanical Laboratories

Through the courtesy of the Massachusetts Institute of Technology officials, and also those of the Franklin Union, we are able to avail ourselves of the unexcelled Mechanical Engineering Laboratories of those Institutions for instruction purposes in the laboratory Courses of the Co-Operative School.

In addition to the foregoing facilities, we have several engines of our own for use for instruction, as well as the most modern equipment for gas and fuel analysis.

Before the Laboratory Courses commence for the year 1914-1915, our present steam engineering plant will be completely equipped with meters, scales, indicators, and all the necessary accessory equipment for making complete boiler tests, and determining the efficiencies of the various appliances used in generating power, heat, and light for our new building. This will place at the disposal of our classes a perfectly equipped, up-to-date, engineering department, and give them the means of carrying on boiler tests, determining the efficiencies of various fuels and oils, taking indicator diagrams, determining the efficiency of modern reciprocating engines and turbines when direct connected to generators, as well as render them familiar with all the various auxiliary appliances of such a plant, as condensers, pumps, air compressors, etc. The students also have the use of the equipment of our Automobile School, thus giving opportunity to study the most advanced ideas in gasoline engine practice.

MECHANIC ARTS LABORATORIES

There are at present two laboratories, one for metal work and the other for wood working and pattern work, which are available for the use of our students.



DETERMINING THE CANDLE POWER OF GAS
 Everett Works
 Boston Consolidated Gas Co.



MAKING A HIGH POTENTIAL TEST ON A CONCENTRIC FEEDER

The metal working laboratory is well equipped, and affords the student an opportunity for work with various machines, as: lathes, shapers, drill presses and milling machines. There are also a gas forge and brazing furnace, together with all the required equipment for bench work instruction.

The wood working laboratory has a power band saw, lathes, and all the necessary equipment for wood working and pattern work, and as this catalog goes to press, arrangements are being made for the addition of a Universal circular saw and buzz planer to the present equipment.

In addition to the foregoing, a small, but completely equipped, shop for the construction and repair of apparatus, and for the use of students in connection with their thesis work has been installed. This shop is equipped with a metal and wood working lathe, grinder and all the necessary wood and metal working tools. There is also a very complete set of cabinet worker's tools for use in wood working.

CIVIL ENGINEERING DEPARTMENT

Field Instruments

For work in the field, the Department possesses various surveying instruments, representing the principal makes and types of instruments in general use. The equipment includes transits, levels, compasses, a complete plane table outfit, Locke hand level, flag poles, leveling rods, stadia rod, engineers' and surveyors' chains, steel and cloth tapes and other accessories. For Higher Surveying, an Aneroid Barometer is used for barometric leveling, and the transits are equipped with neutral glasses and reflectors for astronomical observations.

This year a sextant, reading to ten seconds, and equipped with neutral glasses and telescopes, has been added to the equipment.

The scope of the equipment and the fieldwork itself are designed to train the student's judgment as to the relative merits of the various types of field instruments.

Design and Drafting Rooms

The school possesses large, light and well equipped drawing rooms for the carrying on of the designing and drafting, which

form so important a part of civil engineering work. These rooms are supplied with lockers containing the drawing supplies, and files containing blue prints and photographs of structures that represent the best practice. Many of the prints and photographs are of structures erected in and about Boston.

ELECTRICAL ENGINEERING DEPARTMENT

The Electrical Laboratory is well equipped with apparatus for teaching the principles of measurements, and the equipment is being steadily increased and developed for the doing of work of a higher degree of precision. Among the special pieces of apparatus may be mentioned the following: Cary Foster Bridge, a modified form of Hoopes Conductivity Bridge, a Laboratory Wheatstone Bridge, a Leeds Northrup Potentiometer with Volt box, standard cells and low resistance standards, an accurate Chemical Balance and other appliances for the close determination of currents, resistances and potential differences.

There has been added this year, a set of variable inductances, and a set of condensers to the amount of eighty microfarads capacity variable in steps of one tenth microfard each.

Among the instruments for testing purposes, for alternating current work, may be mentioned the following: Three matched voltmeters and three General Electric Type P-3 Iron clad wattmeters arranged for Y connection, six other voltmeters of various ranges, potential transformers, nine ammeters some with current transformers, three integrating meters, one General Electric and one Westinghouse polyphase, switchboard type, integrating wattmeters and a High Torque General Electric test meter. There is also a considerable and increasing assortment of auxiliary testing apparatus, such as synchronism indicators, power factor indicators, frequency indicators, etc.

For direct current testing, there is a large and increasing collection of Weston instruments, both voltmeters and ammeters, of suitable ranges and grades of precision, while the measurement of unusual currents and voltages is ensured by three Weston millivoltmeters with an assortment of standard

shunts and multiplying resistances of various orders of magnitude.

There is also the usual assortment of testing devices, such as speed indicators, tachometers, brakes, loading resistances and the numerous minor pieces of apparatus needed in practical testing and operating of electrical machinery.

Among the machines of this Department, are a pair of specially made, matched machines arranged to run as single phase, two, or three, phase generators, or motors, as well as synchronous transformers, double current generators, or on the Direct Current side as shunt, series, or compound, generators, either two or three wire, or as motors.

There are also a 15 horse power 230-volt Westinghouse motor, a new General Electric 10 horse power Interpole 230-volt motor, a 500-volt generator, two 500-volt series, and several 500-volt shunt motors, and a series parallel controller.

A 45 K. V. A., 60-cycle, single phase, 500-volt generator giving a practically pure sine wave, three General Electric Type H transformers of 5 K. V. A. capacity, a $7\frac{1}{2}$ K. V. A. special General Electric 60-cycle 250-volt alternator, with revolving field tapped for either 1, 2, 3 (star or mesh connection) 6 or 12 phase connection, which may be operated (by the substitution of special rotors) also as a synchronous, or induction motor, or a frequency changer. It is intended, in the near future, to add a duplicate of this machine with another interpole motor to drive it, thus obtaining a matched pair of machines, which, with the transformers, will enable a very wide range of alternating current experimentation to be carried out.

There is also available for advanced instruction, in co-operation with the Mechanical Department, the four three-wire generators (two driven by reciprocating engines and two by Westinghouse-Parsons turbines) in the main generating plant of the Association.

DEPARTMENT OF PHYSICS

There is a large laboratory devoted entirely to Physics together with a lecture room.

This year the Physics Department has been very completely equipped with all necessary apparatus for the experimental

work that is required of the students, as well as that required for lecture demonstration. Among other things, have been added: verniers, levels, spherometers, calorimeters, thermometers, pyrometers, a spectroscope, a microscope, a spectrometer, balances, standard gram weight, lecture table galvanometer, optical disk with all accessories, lenses, photometer, a full set of Weather Bureau apparatus including a barograph, thermograph, hygrometer, barometer, maximum and minimum thermometers, etc. These, in addition to the equipment already owned, give a wide range to the experimental work that can be done.

In addition to the foregoing we are preparing to add a large number of new pieces of apparatus, for work in mechanics, heat, and light, and at the time of going to press are getting out specifications so that they may be built for use next year.

DEPARTMENT OF CHEMISTRY

This Department is completely equipped in all respects for carrying on all lines of Chemical work, from that of a High School to that of most advanced College grade. The three laboratories, with accommodations for over one hundred and fifty students, are very exceptionally furnished with all the necessary appliances for chemical work. Some of these are: hoods, drying closets, still, steam and hot water baths, electrolytic circuits, vacuum and pressure apparatus, balances, combustion furnaces, complete sets of apparatus for the sampling and analysis of flue gases and fuels. There are also testing machines for oils, viscosimeters, and different sorts of flash point apparatus. A chemical museum is connected with this Department where are kept specimens for purposes of illustration.

LIBRARIES

There is in connection with the School a professional library containing books pertaining to both the school work of the boys and to their practical work. In addition to this there also are current periodicals on engineering and scientific subjects for their exclusive use. All members of the School are entitled to take books from the Boston Public Library,

and this offers a very unusual opportunity to our non-resident students,

DEPARTMENT OF PHYSICAL TRAINING

Our new gymnasium with all the latest modern equipment gives ample accommodation for all students.

There is a running track on the grounds adjoining, together with tennis and hand ball courts; also a large natatorium where swimming is taught by competent instructors.

In connection with this Department, there are also six excellent bowling alleys, which may be used by the students upon the payment of a nominal fee.

For all further information, write

MR. FRANK PALMER SPEARE, *Director of Education*,
316 Huntington Avenue,
Boston, Mass.

THE CO-OPERATIVE ENGINEERING SCHOOL

Boston Young Men's Christian Association

Boston, Mass.....19

To the Dean:

I,....., hereby respectfully
apply for admission to the..... Engineering Course
of the Co-Operative Engineering School for the school year 19 -
19 , and submit the following statement:

Name in full.....Age.....

ResidenceSt.....City, or Town

State.....Tel.....

Parent's (father's) name.....

“ “ address.....

Graduate of.....Grammar School.....

Graduate of.....High School. Year.....

If not a graduate, how many years were you in High School?.....

When did you leave?.....

Why did you leave?.....

Name of principal.....

If employed since graduation, what is name of employer?.....

.....

Employer's address.....

Names and address of two other persons to whom we may direct inquiries
concerning you.....

.....

.....

.....

Do you plan to complete the full four years' course?.....

When do you desire to start work?.....

With what firm would you prefer employment?.....

Remarks

GENERAL DEPARTMENTS

DEPARTMENT OF PHYSICAL WORK

ALBERT E. GARLAND, M.D., B. P. E. Director

The Physical Department is under the best supervision and the aim is to better fit men for their life work by increasing their efficiency, through exercise. We offer: Well equipped gymnasiums, Recreative, Hygienic and Educational Gymnastics. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts.

DEPARTMENT OF RELIGIOUS WORK

EDWIN W. PEIRCE, Director

In order that a young man may secure a well-balanced development and attain a spiritual foundation for successful life work, the Association advises each member in planning his schedule to enter into one or more of the following activities:—

Bible Study, Sunday Meetings of Men, Personal Service Groups and The Twenty-Four-Hour-A-Day Club.

DEPARTMENT OF SOCIAL WORK

DAVID M. CLAGHORN, Director

The attention of members is called to the many opportunities in the Association for social service, and the following social features.

A Newly Equipped Game Room. The Popular Novel Club.
The Association Congress. The Land and Water Club.
Popular Social Evenings.

DEPARTMENT OF EMPLOYMENT

FREDERICK W. ROBINSON, Director

The Employment Department is, in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25 per cent discount from the legal rates and special effort is made to notify them when good positions are open.

BOYS' DEPARTMENT

DON S. GATES, A.B., City Secretary

The physical, social, employment and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men, as stated above. Membership dues for the boys range from one to six dollars, according to the privileges desired.

THE
EVENING
POLYTECHNIC
SCHOOL

CATALOG
1914-1915



EVENING COLLEGE COURSES

PUBLISHED BY THE
EDUCATIONAL DEPARTMENT
OF THE
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION
316 HUNTINGTON AVENUE
BOSTON, MASS.

DEPARTMENT OF EDUCATION

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

EVENING LAW SCHOOL

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

SCHOOL OF BUSINESS

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses, preparing for business and admission to our School of Commerce and Finance.

SCHOOL OF COMMERCE AND FINANCE

Evening Sessions

Established 1907; incorporated 1911. Offers the following four-year courses leading to the degree of B.C.S. (Bachelor of Commercial Science): Banking, Business Administration, Finance and Bond Salesmanship, and Professional Accountancy. Anyone passing the examination for advanced standing, is enabled to complete any one of the four regular courses and secure the degree in three years. Special courses in addition to regular courses.

PREPARATORY SCHOOL

Evening Sessions

A school of high school grade to prepare students for Colleges, Scientific Schools, West Point, Annapolis, Lowell School for Industrial Foremen, and the classified Civil Service.

HUNTINGTON SCHOOL

Day Sessions

A high-grade school, consisting of a Grammar Department (5th, 6th, 7th and 8th grades), a Preparatory Department, fitting for the Colleges, Medical and Dental Schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law Schools and the classified Civil Service, and a Technical Department, fitting for positions along engineering lines.

CO-OPERATIVE ENGINEERING SCHOOL

Day Sessions

Four years' courses of college grade in Chemistry, Mechanical and Civil Engineering, etc., in co-operation with business firms. Students earn while learning. Open to High School graduates.

AUTOMOBILE SCHOOL

Day and Evening Sessions

Deals with the construction, care, repair and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage.

For further information concerning any of the above schools, or departments, address the Director of Education,

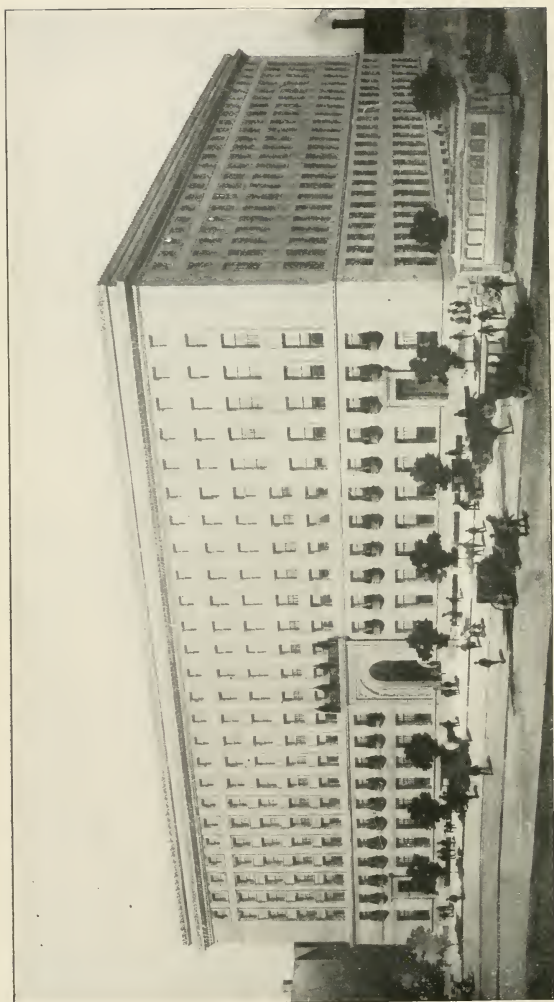
FRANK PALMER SPEARE,
316 Huntington Avenue,
Boston, Mass.

CATALOG
OF THE
EVENING POLYTECHNIC
SCHOOL

1914-1915



PUBLISHED BY THE
EDUCATIONAL DEPARTMENT
OF THE
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION



OUR NEW HOME

This is a picture of the new Association Building which was finished in the Fall of 1913. It contains, among other features, school accommodations of the very best, a fine gymnasium, bowling alleys, swimming pool, cafe, dormitories, shops and laboratories, library and reading room, camera club rooms, social and recreative rooms and auditorium.

Calendar

1914-1915

Sept. 16-19	Registration
Sept. 21	Opening of school
Oct. 12	Columbus Day, Holiday
Nov. 26	Thanksgiving Day, Holiday
Dec. 21-28	Christmas Recess
Feb. 22	Washington's Birthday, Holiday
April 10	Close of school

Officers of Administration

General Administrative Officers

ARTHUR S. JOHNSON, *President*

JACOB P. BATES, *Vice-President*

HAROLD PEABODY, *Recording Secretary*

FRANCIS B. SEARS, *Treasurer*

GEORGE W. MEHAFFEY, *General Secretary*

Educational Committee

WILLIAM E. MURDOCK

ALBERT H. CURTIS

MORGAN L. COOLEY

GEORGE H. MARTIN

Educational Administrative Officers

FRANK P. SPEARE, *Director of Education*

GALEN D. LIGHT, *Asst. Director of Educ. and Bursar*

H. W. GEROMANOS, *Supt. of Evening School System*

IRA A. FLINNER, *Supt. of Day School System*

CHARLES B. GRAY, *Secretary*

ERNEST H. BROOKE, *Registrar*

F. L. DAWSON, *Field Secretary*

Officers of Instruction

THOMAS E. PENARD, S.B., *Mass. Inst. Tech.*

DEAN

WALTER A. BALDWIN, A.B.

Physics

JAMES BROUGH

Freehand Drawing and Industrial Design

LOREN N. DOWNS, JR., S.B.

Electrical Engineering

CARL S. ELL, S.B., M.S.

Structural Engineering

A. L. GARDNER, S.B.

Mechanical Engineering

LESTER GUSTIN, S.B.

Structural Engineering

FRED G. HARTWELL

Electrical Practice and Construction

JOHN W. HOWARD, S.B.

Surveying

EDWARD MUELLER, A.B., PH.D.

Chemistry

W. W. NORTON

Surveying

THOMAS E. PENARD, S.B.

Mathematics

M. F. PINKHAM

Mathematics

CHARLES H. RESTALL, S.B.

Railroad Engineering

R. E. SMITH

Electrical Practice and Construction

W. LINCOLN SMITH, S.B.

Electrical Engineering

ELLWOOD B. SPEAR, A.B., PH.D.

Chemistry

SAMUEL A. S. STRAHAN

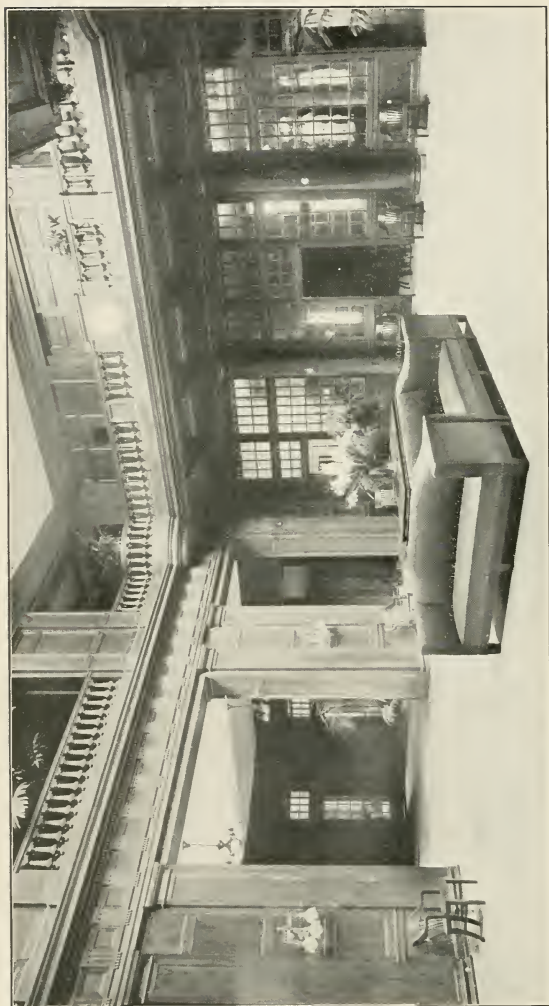
Chemistry

GEORGE A. TRUELSON

Architecture

W. F. WILLMANN

Mechanical Drawing



MAIN LOBBY

Foreword

A great many men employed in engineering and other work of a technical nature, feel the need of special instruction but cannot afford to take the time to attend the regular technical day schools. To such men the Evening Polytechnic School offers a large number of special courses, and to those who are willing to give three evenings per week for a period of from three to five years the school offers several regular courses of very high grade which compare favorably with similar courses given in the good technical schools of the country.

The courses offered in this school are with a very few exceptions of college grade, so that the graduates will find themselves trained to meet the problems arising in engineering practice. They are sufficiently well equipped to hold important positions, and acquit themselves creditably.

On the following pages will be found a complete description of the regular and special courses, requirements for admission, rates of tuition and other general information.

Courses of Study

Regular Courses

- I.—Chemistry and Chemical Engineering
- II.—Electrical Engineering
- III.—Structural Engineering
- IV.—Railroad Engineering
- V.—Municipal Engineering

Schedule of Subjects

No.	Course	No. Weeks	Evenings	Time
1	Mathematics I	28	Mon., Fri. Sect. A	7.00-7.45
			Sect. B & C	7.45-8.30
2	Mathematics II	28	Mon., Fri. Sect. A	7.00-7.45
			Sect. B	8.30-9.30
3	Mechanical Drawing I	6	Wed.	7.00-9.30
4	Mechanical Drawing II	28	Wed.	7.00-9.30
5	Machine Drawing	28	Wed., Fri.	7.00-9.30
6	Architectural Drawing I	28	Mon., Fri.	7.00-9.00
7	Architectural Drawing II	28	Mon., Fri.	7.00-9.00
8	Architectural Drawing III	28	Mon., Fri.	7.00-9.00
9	Freehand Drawing I	28	Tues., Sat. <i>Thurs.</i>	7.30-9.30
10	Freehand Drawing II	28	Tues., Sat. <i>Thurs.</i>	7.30-9.30
11	Industrial Design	28	Tues., Sat. <i>Thurs.</i>	7.30-9.30
12	Life Class	28	Tues., Sat. <i>Thurs.</i>	7.30-9.30
13	Physics	28	Mon., Fri.	8.30-9.30
14	Inorganic Chemistry Lect.	28	Mon., Fri.	7.00-7.45
15	Inorganic Chemistry Lab.	28	Wed.	7.00-9.30
16	Qualitative Analysis	28	Mon., Tues.	A
17	Volumetric Analysis	14	Mon., Tues.	A
18	Gravimetric Analysis	14	Mon., Tues., Wed.	A
19	Organic Chemistry	28	Mon., Tues., Wed.	A
20	Technical Analysis	28	Mon.	A
21	Theoretical Chemistry I	28	Wed.	8.30-9.30
22	Theoretical Chemistry II	28	Fri.	7.00-7.45
23	Industrial Chemistry	28	Mon.	7.45-8.30
24	Electricity Ia	14	Mon., Fri.	7.00-7.45
25	Electricity Ib	14	Mon., Fri.	7.00-7.45
26	Electricity IIa	14	Wed.	7.00-9.30
27	Electricity IIb	14	Wed.	7.00-9.30
28	Electricity III	28	Fri.	7.45-8.30
29	Electricity IV	22	Wed.	7.45-9.30
30	Direct Current Practice	28	Mon., Fri.	8.30-9.30
31	Switchboards & Apparatus	20	Mon.	7.45-8.30

No.	Course	No. Weeks	Evenings	Time
32	Wiring and Nat. Code	10	Mon.	7.45-8.30
33	Alternating Currents I	20	Mon., Thurs.	7.00-8.30
34	Alternating Currents II	28	Mon., Tues., Thurs.	B
35	Alternating Currents III	8	Tues.	B
36	Technical Elect. Measurements I	20	Tues.	7.00-9.30
37	Technical Elect. Measurements II	20	Tues.	7.00-9.30
38	Central and Sub-Stations	20	Tues.	7.00-7.45
39	Power Transmission	10	Fri.	7.45-9.30
40	Electric Railways	18	Fri.	7.45-9.30
41	Heat Engineering	28	Mon.	8.30-9.30
42	Hydraulic Motors	28	Thurs.	8.30-9.30
43	Colloquium			
44	Thesis	28	Mon.	7.45-9.30
45	Elementary Mechanics	28	Mon., Fri.	8.30-9.30
46	Structural Drawing	28	Wed.	7.00-9.30
47	Structural Design	28	Wed.	7.00-9.30
48	Bridge Design	28	Wed.	7.00-9.30
49	Structural Mechanics	28	Mon., Fri.	7.00-8.30
50	Theory of Structures	28	Mon., Fri.	7.00-8.15
51	Strength of Materials	28	Mon., Fri.	8.15-9.30
52	Advanced Structures	28	Mon., Fri.	7.00-8.30
53	Reinforced Concrete	28	Mon., Fri.	8.30-9.30
54	Topographical Drawing	20	Tues.	7.00-9.30
55	Stereotomy	8	Mon., Fri.	8.30-9.30
56	Surveying and Plotting	28	Mon., Fri.	7.00-8.30
57	Advanced Surveying	20	Mon., Fri.	8.30-9.30
58	Materials of Construction	28	Wed.	7.00-8.30
59	Foundations	8	Thurs.	7.00-8.30
60	Highways	8	Tues.	7.00-9.30
61	Hydraulics	28	Thurs.	8.30-9.30
62	Sanitary Engineering	28	Mon., Thurs.	7.00-8.30
63	Municipal Eng. Problems	28	Thurs.	7.00-8.30
64	Railroad Engineering	28	Mon., Fri.	7.00-8.30
65	Applied Mechanics	20	Mon., Fri.	7.00-8.30

A. For hours of instruction see Schedule for Chemistry.

B. For hours of instruction see Schedule for Electrical Engineering.

NOTE: For Prices see Schedule of rates.

Schedules of Courses

I. CHEMISTRY AND CHEMICAL ENGINEERING

First Year

Period	Monday	Wednesday	Friday
7.00-7.45	Inorg. Chem. Lect. (14)	Inorg. Chem. Lab. (15)	Inorg. Chem. Lect. (14)
7.45-8.30	Math. I (1)	"	Math. I (1)
8.30-9.30	Physics (13)	"	Physics (13)

Second Year

Period	Monday	Tuesday	Friday
7.00-7.45	Math. II (2)	Qual. Anal. Lect. (16)	Math. II (2)
7.45-8.30	Qual. Anal. Lab. (16)	Qual. Anal. Lab. (16)	Mech. Drawing
8.30-9.30	"	"	"

Third Year

Period	Monday	Tuesday	Wednesday
7.00-7.45	Anal. Lab. (17) or (18)	Anal. Lab. (17) or (18)	German I
7.45-8.30	"	"	Anal. Lect. (17) or (18)
8.30-9.30	"	"	

Fourth Year

Period	Monday	Tuesday	Wednesday
7.00-7.45	Org. Chem. Lab. (19)	Org. Chem. Lab. (19)	Org. Chem. Lect. (19)
7.45-8.30	"	"	German II
8.30-9.30	"	"	Theo. Chem. I (21)

Fifth Year. For Chemical Engineering Students only

Period	Monday	Wednesday	Friday
7.00-7.45	Tech. Anal. Lect. (20)	Elect. IV (29)	Theo. Chem. II (22)
7.45-8.30	Indust. Chem. (23)	"	Elect. III (28)
8.30-9.30	Heat Eng. (41)	"	

Note: Numbers in parentheses refer to description of courses, pages 16 to 41.

II. ELECTRICAL ENGINEERING

First Year

Period	Monday	Wednesday*	Friday
7.00-7.45	Elect. Ia (24)	Elect. IIa (26)	Elect. Ia (24)
	Elect. Ib (25)	Elect. IIb (27)	Elect. Ib (25)
7.45-8.30	Math. I (1)	"	Math. I (1)
8.30-9.30	Elem. Mechanics (45)	"	Elem. Mechanics (45)

Second Year

Period	Monday	Wednesday	Friday
7.00-7.45	Math. II (2)	Mech. Dwg. I (3)	Math. II (2)
		Elect. IV (29)	
7.45-8.30	Wiring, Nat. Code (32)	"	Elect. III (28)
	Switchboards (31)		
8.30-9.30	D. C. Practice (30)	"	D. C. Practice (30)

Third Year

Period	Monday	Tuesday	Thursday
7.00-8.30	Alt. Cur. I (33)	Tech. Elect. Meas. I & II (36, 37)	Alt. Cur. I (33)
	Alt. Cur. IIa (34)	Alt. Cur. IIIa (35)	Alt. Cur. IIa (34)
8.30-9.30	Heat Eng. (41)	"	Hydr. Motors (42)

Fourth Year

Period	Monday	Tuesday	Friday
7.00-7.45	Inorg. Chem. Lect. (14)	Cent. & Sub-sta. (38)	Inorg. Chem. Lect. (14)
		Alt. Cur. IIIB	
7.45-9.30	Thesis (44)	Alt. Cur. IIb (34)	El. Railways (40)
		Alt. Cur. IIIb (35)	Power Transm. (39)

*If the class is very large a second section will meet on Thursday.

Note: Numbers in parentheses refer to descriptions of courses, pages 16 to 41.

III. STRUCTURAL ENGINEERING

First Year

Period	Monday	Wednesday	Friday
7.00-7.45	Math. I (1)	Mech. Drawing II (4)	Math. I (1)
7.45-8.30		"	
8.30-9.30	Elem. Mechanics (45)	"	Elem. Mechanics (45)

Second Year

Period	Monday	Wednesday	Friday
7.00-8.30	Struct. Mech. (49)	Struct. Drawing (46)	Struct. Mech. (49)
8.30-9.30	Math. II (2)	"	Math. II (2)

Third Year

Period	Monday	Wednesday	Friday
7.00-8.15	Theo. Struct. (50)	Struct. Design (47)	Theo. Struct. (50)
8.15-9.30	Str. of Materials (51)	"	Str. of Materials (51)

Fourth Year to be omitted during 1914-15

Period	Monday	Wednesday	Friday
7.00-8.30	Adv. Struct. (52)	Bridge Design (48)	Adv. Struct. (52)
8.30-9.30	Concrete (53)	"	Concrete (53)

Note: Numbers in parentheses refer to descriptions of courses, pages 16 to 41.

IV. RAILROAD ENGINEERING

First Year

Period	Monday	Wednesday	Friday
7.00-7.45	Math. I (1)	Mech. Dwg. II (4)	Math. I (1)
7.45-8.30		“	
8.30-9.30	Elem. Mechanics (45)	“	Elem. Mechanics (45)

Second Year

Period	Monday	Tuesday	Friday
7.00-8.30	Survey & Plot. (56)	Topo. Dwg. (54)	Survey & Plot.
		Highways (60)	
8.30-9.30	Math. II (2)	“	Math. II (2)

Third Year. To be omitted during 1914-15

Period	Monday	Wednesday	Friday
7.00-8.30	Railroad Eng. (64)	Materials of Const. (58)	Railroad Eng. (64)
8.30-9.30	Adv. Survey. (57)		Adv. Survey. (57)
8.30-9.30	Stereotomy (55)		Stereotomy (55)

Note: Numbers in parentheses refer to description of courses, pages 16 to 41.

V. MUNICIPAL ENGINEERING

First Year

Period	Monday	Wednesday	Friday
7.00-7.45	Math. I (1)	Mech. Dwg. II (4)	Math. I (1)
7.45-8.30		"	
8.30-9.30	Elem. Mechanics (45)	"	Elem. Mechanics (45)

Second Year

Period	Monday	Tuesday	Friday
7.00-8.30	Survey & Plot. (56)	Topo. Dwg. (54) Highways (60)	Survey & Plot. (56)
8.30-9.30	Math. II (2)	"	Math. II (2)

Third Year. To be omitted during 1914-15

Period	Monday	Wednesday	Friday
7.00-8.30	Applied Mech. (65) Stereotomy (55)	Mater. of Const. (58)	Applied Mech. (65) Stereotomy (55)
8.30-9.30	Concrete (53)		Concrete (53)

Fourth Year. To be omitted during 1914-15

Period	Monday	Wednesday	Thursday
7.00-8.30	Sanitary Eng. (65)	Municip. Eng. Prob. (63)	Sanitary Eng. (65) Foundations (59)
8.30-9.30	Heat Eng. (41)	Pract. Elect.	Hydraulics (61)

Note: Numbers in parentheses refer to descriptions of courses, pages 16 to 41.



REFERENCE LIBRARY



DRAFTING ROOM

DEPARTMENT OF MATHEMATICS

DIRECTOR: THOMAS E. PENARD, S. B.

INSTRUCTOR: MR. M. F. PINKHAM.

The importance of mathematics as a means of mental discipline, and as a necessary basis for those intending to pursue engineering as a profession, cannot be overestimated.

Students taking the regular courses in Chemistry and Engineering are given two years instruction in applied mathematics, as outlined in Mathematics I and II. Special attention is called to these two courses in practical mathematics, which are intended to cover the field in so far as mathematics is ordinarily employed in the usual engineering computations.

Courses in advanced applied mathematics will be given provided a sufficient number of men apply to form a class.

1. **Mathematics I.** MR. PENARD AND MR. PINKHAM.

Preparation: Arithmetic.

This course, of two periods per week during the first year, is designed primarily for students taking the regular engineering courses; it is hoped, however, that it will be found adapted to the needs of others who wish to obtain a practical knowledge of elementary mathematics. The student is assumed to be thoroughly familiar with the fundamental operations of arithmetic.

Algebra, including definitions and notation, fundamental operations, factoring, fractions, simple equations, powers and roots, ratio and proportion, variation, with applications to problems chosen from electricity and mechanics, formulas.

Logarithms, the use of slide rules, discussion of precision and rules for significant figures.

Geometry, including useful theorems relating to plane figures, without proofs, measurements of triangle, polygons, circle, polyhedrons, cylinder, cone and sphere.

2. **Mathematics II.** MR. PENARD AND MR. PINKHAM.

Preparation: Mathematics I, (1), or equivalent.

This course of two periods per week during the second year, like Mathematics I, of which it is a continuation, is designed primarily for students taking the regular engineering courses,

but may be taken to advantage by those regularly employed in engineering work who wish to obtain a more thorough grasp of applied mathematics.

Trigonometry including circular measure, co-ordinates, trigonometric ratios, formulas, law of sines, law of cosines, solution of right and oblique triangles, applications to problems in Physics and Engineering.

Plotting of functions, interpolation, the straight line, curves represented by various equations, graphic solution of equations, determination of laws from the data of experiments, simplification of formulas.

Rate of increase, differentiation, determination of maxima and minima by differentiation, integration, definite integrals, determination of mean value, area and volume by integration, centre of gravity, moment of inertia, partial differentiation.

Analytic Geometry and Calculus.

See Mathematics II

DEPARTMENT OF DRAWING

INSTRUCTORS: MR. JAMES BROUGH, MR. GEORGE A. TRUELSON, MR. W. F. WILLMANN.

The courses in Mechanical and Architectural drawing, as outlined, afford the essentials of drafting for those contemplating office work and are equally valuable and necessary to those working in the allied trades.

The art courses are varied and the work is thorough and complete, and of a high order. Great care is taken to develop the student along the line of his natural inclinations, and, so far as possible, to have the work of the school bear directly upon his daily employment and other courses attended.

3. Mechanical Drawing I. MR. WILLMANN.

This course is given during the first six weeks of the second year and is especially designed for students taking the electrical engineering course. Instruction will be given in the use of drawing instruments and the fundamental rules for executing engineering drawings.

4. Mechanical Drawing II. MR. WILLMANN.

This course consists of work in the drawing room, occupying one evening a week throughout the entire first year. The drawing is of an elementary character, beginning with instruction in the use of instruments and the fundamental rules for executing engineering drawings. In conjunction with the drawing, the elementary principles of descriptive geometry and projections are studied, and the student prepares a number of plates illustrating the reproduction of objects in the shape of working drawings.

5. Machine Drawing. MR. WILLMANN.

The aim of the course is to teach the proper way of making the necessary dimensioned drawings for use in practice. The instruction includes: (a) The making of sketches of the parts of a machine from measurements; (b) the detail scale drawing from the sketches and a tracing; (c) an assembly drawing of the machine.

6. Architectural Drawing I. MR. TRUELSON.

An elementary course, including the fundamental principles underlying all kinds of mechanical and architectural drawing: geometrical problems; orthographic and isometric projections and the orders of architecture.

In connection with this course the instructor will outline a course of reading in architectural history.

7. Architectural Drawing II. MR. TRUELSON.

The orders of Architecture. Practical architecture and details of construction. In this course the student is taught the component parts of buildings. Typical details of construction are drawn to a large scale and in isometric projection.

8. Architectural Drawing III. MR. TRUELSON.

This course covers the making of complete plans, elevations and working drawings of some elementary problem.

Special Students

Students desiring special work in Architectural Drawing, not outlined above, should consult with the instructor.

9 and 10. Freehand Drawing. MR. BROUGH.

Considering the great importance of the study of freehand drawing to all who are engaged in, or anticipate being engaged in any industrial art, artistic trade, or profession, we offer a very complete course in this line, and call attention to the splendid advantages provided.

The work is adapted to the requirements of each individual student, so far as is practical and consistent with a thorough training in freehand drawing. There are two classes in both freehand drawing and industrial design.

9. Class I. The work of this class is intended to meet the wants of those students who have no previous knowledge of freehand drawing and is recommended to all students who intend to become craftsmen, designers, architects, or artists, and also to others who may wish to take up the study as an accomplishment. The work will consist of drawing from typical models, by which students learn a sense of proportion and the principles of perspective; groups of still life for the study of composition and color; also drawing of historic ornament, and details of the human figure from the cast, by which students are taught to observe form, and the principles of light and shade.

10. Class II. The course of study in this class is of a more advanced nature than that of Class I, and in addition to the more complicated forms of ornament, the full-length human figure from the antique is added, also rendering in pen and ink and pencil, advanced shading in charcoal, painting groups of still life in monochrome and polychrome, in oil and water colors.

These courses will not be given unless a sufficient number of men apply for them.

11. Industrial Design and Interior Decoration. MR. BROUGH.

The courses in industrial design and interior decoration are specially helpful to those students who are already engaged in, or anticipate being engaged in such arts and crafts, as wood and stone carving, wrought and bent-iron work, brass and copper work, stained glass, furniture and drapery, interior decoration, book covers, wall paper, fabrics and other allied industrial arts, including lettering and commercial designing for advertising purposes. No limitation is placed upon the student who shows ability to take up the work prescribed for the class he wishes to

enter, and students who so desire may spend part of their time in the freehand class and part in the industrial design and interior decoration class, without extra charge. The instructor is a certified art master and one of the leaders of the profession. Students in industrial design are recommended to take architecture.

Class I. The studies in this class include the work of the freehand drawing in Class I, with the addition of special studies given for the purpose of design, such as a systematic study of the various styles of historic ornament, studies of animal and plant form, and the elementary principles of design.

Class II. Students who have an elementary knowledge of drawing and design are considered eligible for this class and are taught the more advanced principles of composition, form and color in design, also rendering the same in various mediums, including charcoal, pencil, pen and ink, water and oil colors.

Our special library can be consulted by the students in these classes.

These courses will not be given unless a sufficient number of men apply for them.

12. Life Class. MR. BROUGH.

At the repeated request of a number of advanced students we offer this class which will give an exceptional opportunity to students who wish to pursue their studies for the purpose of acquiring a more perfect knowledge of the figure, and will be of great advantage to those who wish to become more proficient in this branch of art. At the present time the use of the figure is introduced into nearly every form of art work, not only in a purely artistic sense, but also in many forms of commercial work, and to be able to draw the figure well is a great achievement to the artist and designer.

This course will not be given unless a sufficient number of men apply for it.

Structural Drawing. See Dept. of Structural Engineering.

Topographical Drawing. “ “ “ “

DEPARTMENT OF PHYSICS

INSTRUCTOR: MR. WALTER A. BALDWIN.

13. Physics. MR. BALDWIN.

This course appeals strongly to men engaged in technical work. Instruction is given in the practical application of

physical laws. Problems are given throughout the year to test the pupil's knowledge of these laws. A fully equipped laboratory, accommodating thirty students working at one time, makes it possible to give the best of instruction. The exercises will be selected from the following subjects:

Mechanics

Density and specific gravity, simple machines, parallelogram of forces, friction, pendulum, strength of materials, laws of elasticity, liquids and gases.

Heat

Thermometry-coefficients, laws of expansion, specific heat, latent heat.

Light

Reflection, refraction.

Sound

Velocity, wave length, pitch.

Electricity

Magnetism, cells, electromotive force, resistance.

This course is especially fitted for those who wish to take the College Entrance examinations, and for such students a series of additional exercises is planned covering the work very thoroughly.

DEPARTMENT OF CHEMISTRY AND CHEMICAL ENGINEERING

DIRECTOR: ELLWOOD B. SPEAR, A.B., PH.D.

INSTRUCTORS: EDWARD MUELLER, S.B., PH.D. AND ASSISTANTS.

The wonderful advance in the application of science to the arts during the past few years has caused a great demand for technically trained men. Nearly every large manufacturing concern now employs chemists regularly, or else has experts whom it can consult at short notice. The scientific and technical schools are each year sending out large classes of young men, especially trained to meet this demand. For a young man to acquire this education requires four years at a scientific, or technical school, in addition to the four years necessary for preparation at the secondary school, and an outlay of from two to three thousand dollars. These necessary expenditures of

time and money are such that many young men, who are mentally capable of taking such courses, are obliged to give up their ambitions and fill inferior positions.

Formerly the practical knowledge which young men acquired by contact with their work was sufficient, but today the degree of specialization is such that a theoretical knowledge is essential to success in many industries where chemical processes are utilized.

There are many men who, by close application to the practical side, have acquired responsible positions in technical industries, but are unfamiliar with the theoretical side of their chosen work.

Such men are unable to advance in their special lines, because they cannot read the many valuable books written on special technical subjects, which presuppose a general knowledge of the theory of chemistry.

At the present time, the requirements of admission to the higher institutions of learning, even for special students, are such that the doors are practically closed to these men, although many of them could take special courses with profit. Again, the only available hours for such men are during the evening. There is a demand, therefore, for a systematic evening course in chemistry, which will be open to men engaged at the present time in technical industries.

Regular Students

The school offers a thorough four year course in the general principles and applications of inorganic, organic and analytical chemistry, sufficiently complete to enable students to pursue their work with intelligence; to correlate theory and practice; to read technical works with profit; to test the quality and purity of chemicals and to become familiar with the laboratory methods of the trained chemist.

To the student who can pursue his studies an extra year, and who has had the necessary training, the school offers a course in chemical engineering. It is the aim of this course to prepare men to aid in the operation of industries based on chemical principles.

Special Students

Any of the courses in chemistry may be taken singly, pro-

vided the head of the department is satisfied that the student can pursue the work with profit.

Special courses may be arranged with the head of the department.

Students are especially urged to take the entire work on the schedule of each year. A good grounding in mathematics, physics and German, is essential to success in the chemical subjects of the third and fourth years.

Laboratories

The laboratories in the new building on Huntington Avenue are fitted with an excellent equipment in up-to-date apparatus, to give thorough instruction in all the courses offered.

A laboratory deposit of three dollars for the first year, and four dollars for all other years, must be paid before desks will be assigned. Students who have not checked up their desks by the end of the school year will be charged one dollar extra.

The School makes an effort to secure positions for those who have successfully completed the course in chemistry, or chemical engineering.

14. Inorganic Chemistry.

DR. SPEAR AND ASSISTANT.

A course of 56 experimental lectures on the fundamental laws and principles of inorganic chemistry. The course aims to familiarize the student with the properties and preparation of the following elements and their most important compounds:—oxygen, hydrogen, the halogens, sulfur, nitrogen, phosphorus, carbon, silicon, the alkali and alkaline earth groups, iron and aluminium. The course is to be taken in conjunction with (15).

Text book:

General Chemistry for Colleges, Smith.

15. Inorganic Chemistry Laboratory.

DR. SPEAR AND ASSISTANT.

A laboratory course of 28 weeks, 90 periods in which the student is expected to verify and illustrate the facts and principles that have been discussed in the lectures. To be taken in conjunction with (14).

Text book:

Laboratory Experiments in Inorganic Chemistry, Spear.

Courses (14) and (15) are well adapted to the needs of those who wish to take the College Entrance examinations.

16. Qualitative Analysis.

DR. SPEAR AND MR. STRAHAN.

Preparation, (14) and (15), or an equivalent.

A practical course in qualitative analysis of 28 weeks, 140 periods duration, in the second year. The course relates to the identification of the common metallic elements and the ordinary acids.

Each student is expected to make complete and accurate analyses of various mixtures, alloys and chemicals used in the industries. The laboratory work is supplemented by lectures and conferences.

Text books:

General Chemistry for Colleges, Smith;

Qualitative Chemical Analysis, A. A. Noyes.

17. Volumetric Analysis.

DR. MUELLER AND ASSISTANT.

Preparation, (14), (15), (16), or equivalent.

A course of 14 weeks, 98 periods, in the third year on volumetric determinations, involving the use and the standardization of burettes, pipettes, and measuring flasks. The course includes alkalimetry, acidimetry, indicators, oxidimetry, iodimetry, chlorimetry. The laboratory work is supplemented by lectures and conferences.

Text book:

Quantitative Chemical Analysis, Talbot.

18. Gravimetric Analysis.

DR. MUELLER AND ASSISTANT.

Preparation, (14), (15), (16), (17), or equivalent.

A course of 14 weeks, 98 periods, devoted to the principles and practice of gravimetric analysis. The laboratory work is supplemented by lectures and conferences.

Text books:

Quantitative Chemical Analysis, Talbot;

Analytical Chemistry, Treadwell and Hall, Vol. 2.

19. Organic Chemistry.

DR. MUELLER AND ASSISTANT.

Preparation, (14), (15), (16), (17), (18).

A course consisting of 196 periods during the fourth year. The course is devoted to lectures, conferences and laboratory work, on the principles of organic chemistry, as illustrated by the methane and benzene derivatives. The student is required to prepare in the laboratory a number of organic compounds, selected to show the characteristic reactions, and to give training in the practical separation and purification of organic substances. After this synthetic work, the students are given a practical course in organic analysis.

Text books:

Holleman, Text-book of Organic Chemistry; Gatterman, Practical Methods in Organic Chemistry, translation by Schober. Laboratory notes by the instructor.

20. Technical Analysis.

DR. MUELLER AND ASSISTANT.

Preparation, (19), or an equivalent.

A course of 28 periods in the fifth year, on the following:
Analysis of gases.

Analysis and testing of mineral, animal and vegetable oils.

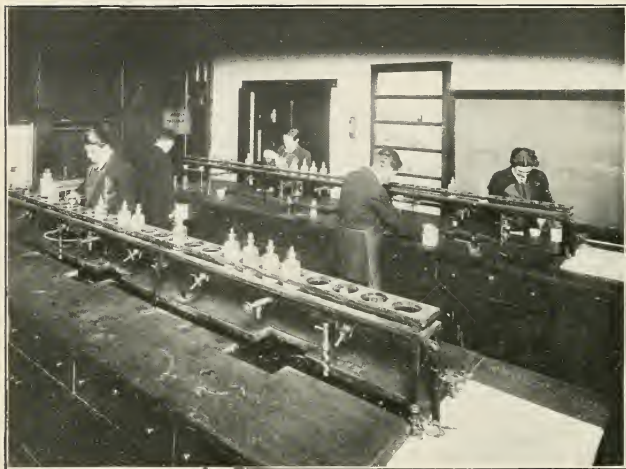
The origin, manufacture, properties, uses and analysis of the various fuels, and the determination of the heat value of fuels by the use of a calorimetric bomb.

21 and 22. Theoretical Chemistry I and II.

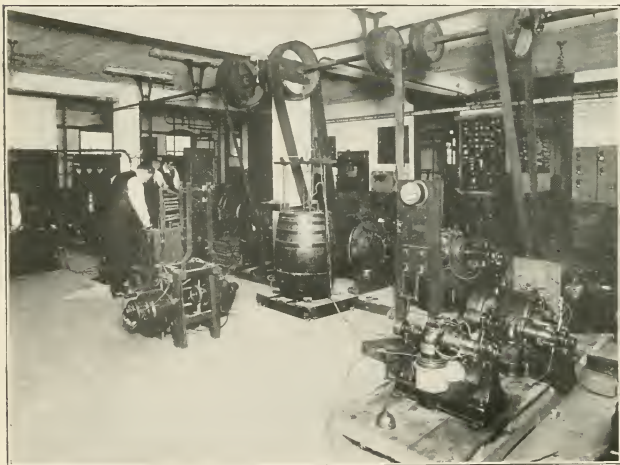
DR. SPEAR, DR. MUELLER.

Preparation, (2), (16), (17), (18).

A course of 56 lectures and conferences on chemical equilibrium and electro-chemical topics. The course will include lecture experiments and discussion of problems on the law of mass action applied to the rate and equilibrium of chemical reactions, the effect of temperature and pressure, the conduction of electricity by solutions, the production of electricity by chemical change, the electromotive force of voltaic cells and single potential differences. Problems for independent solution by the student will also be given.



CHEMISTRY LABORATORY
(One of Three)



CORNER OF ELECTRICAL LABORATORY

23. Industrial Chemistry.

Preparation, (16), (17), (18), (19).

A course of 28 lectures and conferences on the more important chemical processes. Attention is given to many operations of a general nature common to chemical industries, such as crushing, grinding, filtration, evaporation, distillation, etc., and to the apparatus employed in these processes. Some of the more important industries will be taken up in detail.

Text book:

Thorp, Outlines of Industrial Chemistry.

DEPARTMENT OF ELECTRICAL ENGINEERING

DIRECTOR: W. LINCOLN SMITH, S.B.

INSTRUCTORS: LOREN N. DOWNS, JR., S.B., A. L. GARDNER, S.B., MR. F. G. HARTWELL, MR. R. E. SMITH.

The school offers a thorough course in Electrical Engineering, combining theory with practice.

The laboratory equipment is very complete and suitable for teaching in a very effective manner. The object of all the laboratory work is to have the student expand the knowledge he has received from the lectures, and reading, by learning through his finger tips; to have him absolutely handle the object under discussion; to adjust, measure, and test electrical machinery; to become familiar with dynamos, motors, electric wires, and, in fact, to get an intelligent conception of the entire problem from a practical standpoint. In addition to the foregoing, however, it is aimed to supply sufficient theory so that the student may know why certain things are done, enabling him thereby to become a skilful operator and one capable of growth and development. When a man is in earnest, and attends regularly, he can acquire an intelligent conception and a working knowledge which has a direct and absolute commercial value.

In addition to the above regular courses of the School, it is intended that, if sufficient men apply to cover the cost, courses will be given on the subject of wireless telegraphy, induction coils and firing systems for gasoline engines, etc.

Also should a sufficient number of men apply to warrant the formation of a class, it is intended to arrange for a lecture

and laboratory course in telephony. This, however, would hardly be warranted for a less number than fifteen, and twenty would be better, as the expense of instruction and laboratory equipment would be large.

Students in the regular second-year course would not find it possible to take this in addition to their regular work, but might substitute it for a part of the same, after considering the matter with the Dean.

Although the second and third year courses of the long technical course are integral parts of the same, the work has been planned, so far as possible, to allow of any man having sufficient knowledge, entering at any point as a regular student, after satisfying the instructors of his capacity to carry on the work without hindrance to the other men; or, as a special student for such particular parts of the work as he may desire. Thus he may take either the whole of the second-year work, or any one, or more, of the courses which appeal to him, and the same in the third year. The expense will be arranged in each individual case according to its particular nature.

24. Electricity Ia. MR. HARTWELL.

A lecture course of 14 weeks duration on the following subjects:—Ohm's law, power measurements, batteries, annunciators, burglar alarms, gas lighting systems, electric wiring devices, new and old house work, moulding, conduit, knob, tube and cleat work, arc and incandescent lamps, two and three wire systems, different types of switches and their use, method of installing, testing and locating trouble.

25. Electricity Ib. MR. HARTWELL.

A lecture course of 14 weeks duration on the following subjects:—Different types of motors and controlling devices, methods of connecting and installing the same, fitting and setting brushes and common troubles and their causes, generators, different types, and connections for the same, how to take care and operate, common troubles and their causes, switchboards, different devices used on switchboards and their use, connections for all kinds of direct current, two and three-wire switchboards, booster and balancer sets explained, and connections given, location of generator and switchboards.

26. Electricity IIa. MR. HARTWELL.

A laboratory course of 14 weeks duration covering subjects given in electricity Ia.

27. Electricity IIb. MR. HARTWELL.

A laboratory course of 14 weeks duration covering subjects given in Electricity Ib.

28. Electricity III. MR. W. L. SMITH OR ASSISTANT.

This course of 28 weeks, 28 periods, consists of Lectures on the general principles of Electricity and Magnetism, including such matters as Resistance, Inductive reactance, Capacity reactance, Voltage and Current relations in complicated networks of circuits. The various Electrical Units of Measurement, and their dimensional equations, etc., in addition to the usual consideration of the Electrical phenomena given in the Electrical section of a general physics course, up to, and including the principle of Electromagnetic-induction, the intention being to lay a thorough foundation for the future more specialized branches of the course.

29. Electricity IV. MR. DOWNS OR ASSISTANT.

This is a Laboratory Course of 22 weeks, running parallel with Elect. III and Direct Current Practice, and designed to emphasize the understanding of the principles studied in these, as well as to give the student practice in the handling of instruments and the making of observations preparatory to the later courses which involve the precise testing of electrical machinery. Thus it includes such experiments as a study of the bridge principle, determination of a current by electrolysis, resistance by Ohm's law, magnetization of iron, measurement of the self induction of a coil, of the capacity of a condenser etc., on the one hand; and on the other, such experiments as the relation of speed and E. M. F. in an armature running at constant speed in a constant field; Variation of E. M. F. with field strength; potential distribution about the commutator; variation of candle power with voltage in the various types of incandescent lamps, operation of arc lamps etc.

30. Direct Current Practice. MR. HARTWELL, MR. DOWNS, AND ASSISTANT.

This Course of 28 weeks, 56 periods, begins at the point

where Elect. III leaves off and discusses the theory of direct current generators and motors, winding of D C Armatures,—and in general a careful and detailed consideration of the application of direct currents to the various industrial processes is given, except in so far as relates to railway work, the consideration of which is deferred to the special course on that subject. It is essentially a lecture course, though many of the lectures may take place in the laboratory, or power house, about the machine under consideration.

31. Switchboards and Apparatus. MR. HARTWELL.

This is a lecture course of 18 periods, in which is discussed the apparatus used upon switchboards, the planning of switchboards, connecting up, etc. It is not intended to consider in this course the complicated switchboards and devices used in large stations, but rather those used in small plants for public supply, isolated private plants, and control panels, as for stage lighting, etc.

32. Wiring and the National Code. MR. HARTWELL.

The consideration of appliances used in wiring of buildings and the methods of running circuits (so far as the electrical operation of the same is concerned) has already been taken up as a subdivision of Electricity I. The present course of 10 periods is given over to the consideration of various accepted methods of installing wires, the various rules of the National Electrical Code and their reason for being. This course will be a very thorough and valuable consideration of the Code, it being given by Mr. Hartwell, a member of the Executive Committee of the National Association of Electrical Inspectors, and under the immediate supervision of Mr. Smith, who is the Secretary of the same Association, as well as of the Mass. Association of Municipal Electrical Inspectors. As a result of this, mooted points of controversy over the exact meaning of the various sections of the Code, which arise between wiremen and inspection departments all over the country, as well as the decision of the chiefs of twenty-four of the most important inspection jurisdictions, both municipal and Fire Insurance Exchanges, are immediately available in the Class room. The course deals only with inside wiring and not with street distribution systems.

33. Alternating Currents I. (Theory of Alternating Currents).
MR. DOWNS.

Preparation: Elec. III.

This course of 40 lectures and recitations, during the first twenty weeks, in the third year, concerns itself with the general theory of alternating current circuits, and the application of these principles to various engineering problems. In connection with the work, considerable emphasis is attached to the solution of problems selected with particular reference to their engineering application.

34. Alternating Currents II. (Alt. Current Machinery).
MR. DOWNS AND MR. W. L. SMITH.

Preparation: Alternating Currents I.

This course of lectures, recitations, and problems, IIa consisting of 16 periods during the last eight weeks in the third year, and IIb of 20 periods during the first twenty weeks in the 4th year, is devoted to a careful discussion of the various types of alternating current machinery for the generation, transmission and distribution of power. The special properties of each machine are considered, for the machine as a unit, and also when it is a part of any electrical system. Some of the general considerations concerning long distance transmission are also discussed.

35. Alternating Currents III. MR. DOWNS AND MR. W. L. SMITH.

IIIa. A. C. Machinery Laboratory and Reports.

IIIb. Advanced D. C. and A. C. Laboratory and Reports.

Preparation of A. C. IIa and b.

This course consisting of 20 hours during the last eight weeks in the third year (A. C. IIIa), and 20 hours during the last eight weeks in the 4th year (A. C. IIIb) is a continuation of Elec. IV Lab. It includes such tests as efficiency, heating regulation and determination of characteristics for alternating current machinery. For the advanced laboratory work tests will be made on the power plant of the Y. M. C. A. buildings. In this course, particular attention will be paid to the reports, which are in every case to be complete engineering reports of

the work undertaken. The work in the laboratory will be supplemented by individual conferences.

36. Technical Electrical Measurements I. MR. W. L. SMITH.

This is a lecture course of twenty weeks, in which are discussed the principles of various methods of Electrical Measurement, as well as the different instruments used, particular attention being given to the precision of the methods, the sources of error in instruments, and means for their detection and elimination.

37. Technical Electrical Measurements II. MR. W. L. SMITH.

This is a Laboratory Course of twenty weeks parallel with the former, the various experiments including such as the Correct use of the Wheatstone Bridge, the Slide Wire Bridge, Insulation Resistance Testing, Calibration of Wattmeters, Calibration of Voltmeters and Ammeters by use of the Potentiometer, etc., in each case careful application of the principles of Precision of Measurements being required.

38. Central and Sub-Stations. MR. DOWNS.

A course of Lectures, 20 periods dealing with the layout, construction and operation of electric power generating stations, for the general distribution of electricity for light and power purposes, except that the peculiar characteristics of Railway Power stations are not considered. In this course will be taken up the switchboard devices necessary to this type of plant.

39. Power Transmission. MR. W. L. SMITH OR ASSISTANT.

In this course of 10 periods, will be considered the economic problem of power transmission, the principles governing the design of transmission lines, the construction of the line and the National Code Rules governing such lines, and some of the more important municipal and statutory requirements.

40. Electric Railways. MR. W. L. SMITH OR ASSISTANT.

A course of 18 periods, including lectures and practical examples of the following subjects: Train Resistance, Railway Motors and their characteristics, determination of equipments by speed time curves and train sheets, car construction and equipment, electric locomotives, rail bonding, trolley and third rail

construction, design of feeder and transmission lines, substation and power station equipment, power system determinations, storage battery traction, and steam railroad electrification by direct and alternating currents.

41. Heat Engineering: Thermodynamics and Boilers. MR. GARDNER.

A course of 28 hours in the study of the principles of thermodynamics; a discussion of the properties of gases, saturated and superheated vapors, especially of air and steam; of the flow of fluids through orifices, nozzles, pipes and meters, a discussion of the action of the steam injector; a study of the various cycles of the hot air, internal combustion and steam engines of the turbine, air compressor and refrigerator systems. These engineering applications are treated from the physical, analytical and graphical points of view, so as to give the student a good foundation in the principles of thermodynamics, in the solution of actual heat engineering problems. The course also includes a study of the simple, compound and multiple expansion steam engine, of the different types of gas engines, of the gas producer, of compressed air and refrigerator machines, and the methods of testing such machines.

The latter part of the course includes a study of the various types of steam boilers and the different kinds of power plant apparatus, including fans, blowers, economizers, condensers, feed pumps, etc. A short discussion of the construction and stability of chimneys is also given.

42. Hydraulic Motors. MR. GARDNER.

A course of 42 hours, mainly recitations covering the principles of hydrostatic and hydrodynamic pressure, the flow of water through open channels, pipes, orifices and nozzles and over weirs. Half the time is given to a study of impulse wheels and reaction turbines, with reference to their proper construction, regulation and testing, and to the various sources of loss of energy in their operation.

43. Colloquium. MR. W. L. SMITH AND MR. DOWNS.

The class will meet once a month, during the fourth year, for an entirely informal discussion of various matters appearing

from time to time in the Technical press. Subjects for discussion will be assigned to the various students several weeks ahead, and upon the allotted evening, a fifteen minute talk will be given by the student to whom the subject has been assigned and the remainder of the time to an open discussion of the same, the instructor acting as moderator of the meeting. This work, too, will be of great value to the student as a means of learning to absorb a subject, impart his information to others, and to maintain his position effectively in argument, as well as learning to acknowledge a mistake, gracefully, yield to the logical scientific correctness of another's argument, and in general to gain a more scientific and reasoning mental attitude.

44. Thesis.

During the final year, each student in order to qualify for a diploma, must prepare and present a report upon some piece of original work, investigation of some piece of machinery, consideration of some practical problem, or similar subject, the students working either alone or in pairs, and at such time as they please, within limits, the subjects being selected in consultation with one of the instructors, who will have immediate supervision of the work.

The object of this work is to develop the student's powers of original investigation and to teach the principles upon which the study of special problems of various kinds should be approached. It is hardly expected that the immediate results of the investigation will be of great value, in view of the time allowable, considered as contributions to engineering knowledge, but it is expected and believed that the value to the student himself will be very great.

DEPARTMENT OF STRUCTURAL ENGINEERING

INSTRUCTORS: MR. C. S. ELL, M.S. AND MR. LESTER GUSTIN.

The four years' course in structural engineering covers thorough instruction in mathematics, mechanics and the theory and practice of drafting, detailing, estimating and designing. Thorough instruction is given by means of lectures and classroom work in the important theoretical and practical principles of design, supplemented by the execution of detail drawings in the drafting room.

45. Elementary Mechanics.

This course in the first year is devoted to the elementary principles of mechanics and is designed to familiarize the student with the fundamental principles of statics, stresses in frames and dynamics so that the work of the succeeding years will be more readily grasped.

46. Structural Drawing.

The course in structural drawing occupies one evening a week throughout the entire second year. The course consists in the working out of various graphical problems of mechanics on the drawing board, drawing standard sections of structural steel shapes, plotting shear and moment diagrams and the preparation of drawings, representing elementary structural details. The purpose of this course is to familiarize the student with detailed drawings and teach him where and how to dimension structural parts on working drawings.

47. Structural Design.

The course in structural design consists of work in the drawing room, one complete evening each week throughout the third year. It is a continuation of the course in structural drawing given in the second year, and includes the execution of elementary structural design, taking up in a practical way the principles given in the course in Theory of Structures. Each student is given data for various problems, the designs for which he works out in the drawing-room, making all necessary computations and executing all drawings necessary for the preparation of a complete design of a number of engineering structures.

48. Bridge Design.

The course in bridge design occupies one complete evening a week throughout the fourth year. Most of the work is done in the drawing-room, but instruction is given from time to time by means of lectures. The work includes the execution of complete designs for several types of railroad bridges and the execution of complete working drawings.

49. Structural Mechanics.

This course consists of one period on Monday and Friday evenings, throughout the second year. The course covers the

fundamental principles of statics, the computation of shear and moment diagrams, a study of the centre of gravity and the moment of inertia of plane figures and the application of the various principles of mechanics to the solution of simple structural problems. The work consists of lectures, recitations and the solution of problems, many of which are done in the drawing-room.

50. Theory of Structures.

This course occupies one period on Monday and Friday evenings throughout the third year and consists of lectures, recitation and solution of problems. In this course instruction is given in the fundamental theory of structures including the theory of beams, computation of reactions, moments, shears for static and moving loads. The work in the class-room is supplemented by the solution of many practical problems in the drawing-room.

51. Strength of Materials.

This course occupies one period on Monday and Friday evenings throughout the third year, consisting of lectures, recitations and the solution of problems. Instruction is given in the properties of various building materials, such as stress, strain and the various elastic properties of the different materials. Study is also made of the strength, composition and adaptability of steel, timber, stone, concrete and various other materials for use in structures.

The common theory of beams is also studied with a thorough discussion of the distribution of stress, shearing forces, bending moments, slopes and deflections.

52. Advanced Structures.

This course occupies one period on Monday and Friday evenings, throughout the fourth year. It is a continuation of the theory of structures given in the third year and takes up the fundamental principles involved in the design of various engineering structures, such as buildings, bridges, retaining walls, arches and other structures, as the time permits. Instruction is given by means of lectures and recitations and the various theoretical principles are applied in the execution of practical designs in the drawing-room.

53. Reinforced Concrete.

This course occupies one period on Monday and Friday evenings, throughout the fourth year. The various principles of design of structures of reinforced concrete are taken up by means of lectures. Instruction is given in the theory and practice of reinforced concrete construction and the student solves many problems illustrating the computations for design of beams, girders, floor slabs, columns, footings, retaining walls, etc. Some of these problems are worked out and drawings are made in the drawing-room.

DEPARTMENT OF RAILROAD ENGINEERING AND MUNICIPAL ENGINEERING

INSTRUCTORS: JOHN W. HOWARD, S.B., CHARLES H. RESTALL, S.B.

The school offers a complete course in Municipal Engineering to meet an urgent demand for instruction in this Department. The course, extending over a period of four years, has been prepared with great care and it is believed will meet the requirements of those who wish to equip themselves for Town, or City Engineers.

Students wishing to take separate courses may do so on approval of the Dean.

54. Topographical Drawing.

This course of 20 weeks in the second year, is primarily designed to give training in the interpretation and drawing of topographical maps. It consists of three hours per week in the drawing-room, devoted to the study of the different conventional signs employed, and each student is required to make a number of plates, and to become reasonably proficient in the preparation of such maps. Particular attention is given to the study of contour maps, and the solution of problems relating thereto.

55. Stereotomy.

A course of 2 periods per week, during the last ten weeks of the second year, in the applications of Descriptive Geometry

to the making of drawings in connection with the design of masonry structures, such as intersecting arches and walls, abutments, piers and culverts.

56. Surveying and Plotting. MR. HOWARD.

Preparation: Trigonometry or Math. II (2)

The course in surveying consists of 3 hours instruction each week during the second year, in the theory of plane surveying, with field exercises on Saturday afternoons in the Fall and Spring.

During the first term, the field work consists of practice in the use of the transit and tape in making surveys for determining areas and for making plans. The class work includes methods of computing areas, subdividing land, and all of the common problems of plane surveying.

The second term is devoted chiefly to drawing. Students are required to plot a survey of a city lot, on a scale of 40 feet to an inch, to draw a plate of conventional signs used in topography, and to plot a topographical map on a scale of 100, or 200 feet to an inch.

In the spring, the field work consists of practice in using the level for establishing bench marks, running profiles, cross sectioning, etc. The class work includes problems in the use of contour maps, plotting profiles, estimates of earthwork, etc. If time permits, instruction is given in stadia and plane table surveying.

57. Advanced Surveying. MR. HOWARD.

Preparation: Surveying and Plotting (56) or equivalent.

This course occupies 2 periods per week during the first twenty weeks of the third year and covers the following subjects:

Triangulation: reconnaissance, base-line measurement, signal building, use of heliotropes, measurement of angles, calculation of triangles, calculation of geodetic positions.

Astronomical Observations: observations for latitude, observations for time and longitude, determination of azimuth.

Leveling: precise spirit leveling, trigonometric leveling, barometric leveling.

Topographic Methods: transit and stadia method, plane-table method.

Hydrographic Surveying: methods of locating soundings, use of sextant, measurement of stream flow.

Map Projections: study of the principal projections used in constructing maps.

Exercises in fieldwork will be held Saturday afternoons.

58. Materials of Construction.

A course of one and one half hours per week during the third year, taking up a consideration of the properties of the various materials used in engineering construction, such as wood, iron, steel, brick, stone, cement and concrete.

59. Foundations.

A course of one hour per week during the last eight weeks of the fourth year.

The subjects treated in this course are as follows: Building stones and concrete, bearing power of different kinds of soil, examination of the site, designing the footings, whether of masonry, or of steel and concrete, independent piers, pile foundations, compressed air processes, freezing processes, retaining walls, together with some details of buildings for industrial purposes, constructed of steel or of reinforced concrete.

60. Highways.

A course of two and one half hours per week during the last eight weeks of the second year, in which are treated the following subjects:

The construction of roads and city streets, the problems of drainage and maintenance, qualities of trap rocks, good gravel, binding materials, paving blocks and bricks, concrete foundations, and the uses of asphaltic oils and other bituminous materials.

61. Hydraulics.

A course of one and one half hours per week during the fourth year. The course consists of two parts. The first is devoted to the study of theoretical hydraulics dealing with hydrostatic and hydrodynamic pressure, the flow of water through channels, pipes, orifices and nozzles and over weirs. The second part deals with such practical problems as the study of stream flow and storage and the development of water power.

62. Sanitary Engineering.

A course of 65 hours during the fourth year, consisting of the study of water supply and sewage disposal and their relation to public health, the sources of water supply, tests for purity, bacteria, etc., the design of a sewage disposal system, septic tanks, filter beds, and the collection and disposal of garbage wastes.

63. Municipal Engineering Problems.

A course of 28 weeks in the fourth year dealing with various engineering problems encountered by town and city engineers such as construction of sewers, retaining walls, bridges, grade crossing problems, making of contracts, and writing specifications for various construction work, methods of inspection, and handling of public service properties, such as poles, lines, conduits, tracks, etc.

64. Railroad Engineering. MR. RESTALL.

A course of three hours per week during the fourth year. It includes the study of the following:

Railroad location, as influenced by topographical features, purpose, grades, pusher grades, length of line curvature, rise and fall. Field work and making of location plans.

Computation and methods of laying out of simple, compound, reverse and easement curves. Circular and parabolic curves in connection with gradients. Practical curve problems.

Earthwork, slope stakes, cross-sections, burrow pits, methods of computations, tables and diagrams.

Frogs, switches, turnouts, cross-overs, crossing frogs, turnout tables, track, track laying, rail, ballast and drainage.

Yard design, passenger and freight yards, gravity yards, hump yards, yard accessories, stations, terminals, elimination of grade crossings, methods of construction and making estimates.

Draughting. The course will be supplemented to some extent by draughting and by railroad designing.

Fieldwork. Where necessary to illustrate the principles involved in the course, exercises will be given in the field on Saturday afternoons in the spring.

Preparation. Algebra, geometry, trigonometry, surveying.

If not qualified by having passed the above subjects, a student may be admitted as a special student on approval of the instructor of the course with the consent of the dean.

65. Applied Mechanics.

This course of sixty hours comprises a study of general methods and applications of statics, including the determination of stresses in frames; of centre of gravity, moment of inertia and radius of gyration; of kinematics and dynamics including uniform and varying rectilinear and curvilinear motion, centrifugal force, momentum, impact, work, power and kinetic energy.

Equipment

DEPARTMENT OF PHYSICS

There is a large laboratory devoted entirely to Physics together with a lecture room.

This year the Physics Department has been very completely equipped with all necessary apparatus for the experimental work that is required of the students, as well as that required for lecture demonstration. Among other things, have been added: verniers, levels, spherometers, calorimeters, thermometers, pyrometers, a spectroscope, a microscope, a spectrometer, balances, standard gram weight, lecture table galvanometer, optical disk with all accessories, lenses, photometer, a full set of Weather Bureau apparatus including a barograph, thermograph, hygrometer, barometer, maximum and minimum thermometers, etc. These, in addition to the equipment already owned, give a wide range to the experimental work that can be done.

In addition to the foregoing we are preparing to add a large number of new pieces of apparatus, for work in mechanics, heat, and light, and at the time of going to press are getting out specifications so that they may be built for use next year.

DEPARTMENT OF CHEMISTRY

This Department is completely equipped in all respects for carrying on all lines of Chemical work, from that of a High School to that of most advanced College grade. The three laboratories, with accommodations for over one hundred and fifty students, are very exceptionally furnished with all the necessary appliances for chemical work. Some of these are: hoods, drying closets, still, steam and hot water baths, electrolytic circuits, vacuum and pressure apparatus, balances, combustion furnaces, complete sets of apparatus for the sampling and analysis of flue gases and fuels. There are also testing machines for oils, viscosimeters, and different sorts of flash point apparatus. A chemical museum is connected with this Department where are kept specimens for purposes of illustration.

DEPARTMENT OF MECHANICS

Mechanical Laboratories.

There is a completely equipped steam engineering laboratory in the new building where students may make practical boiler and fuel tests, as well as study steam engineering practice. In addition to a complete modern power plant used for lighting and heating the buildings, there are several engines used wholly for instruction purposes. The students also have the use of the equipment of our Automobile School, thus giving opportunity to study the most advanced ideas in gasoline engine practice.

Mechanic Arts Laboratories.

There are two large laboratories, one for metal work and the other for wood work. These are for the use of those students who wish instruction of this character. The metal working laboratory is now in use in connection with the Automobile School and includes: one large and one small drill press, one large and one small engine lathe, a high-speed lathe, emery wheel, shaper, grinding machine, electric drill and milling machine, together with the necessary equipment for complete machine, and bench work instruction.

The wood working laboratory includes planers, saws, steam boxes and benches, together with all necessary equipment for complete instruction in practical woodworking.

DEPARTMENT OF ELECTRICITY

The Electrical Laboratory is well equipped with apparatus for teaching the principles of measurements, and the equipment is being steadily increased and developed for the doing of work of a higher degree of precision. Among the special pieces of apparatus may be mentioned the following: Cary Foster Bridge, a modified form of Hoopes Conductivity Bridge, a Laboratory Wheatstone Bridge, a Leeds Northrup Potentiometer with Volt box, standard cells and low resistance standards, an accurate Chemical Balance and other appliances for the close determination of currents, resistances and potential differences.

There has been added this year, a set of variable inductances, and a set of condensers to the amount of eighty microfarads capacity variable in steps of one tenth microfarad each.

Among the instruments for testing purposes, for alternating current work, may be mentioned the following: Three matched voltmeters and three General Electric Type P-3 Iron clad wattmeters arranged for Y connection, six other voltmeters of various ranges, potential transformers, nine ammeters some with current transformers, three integrating meters, one General Electric and one Westinghouse polyphase, switchboard type, integrating wattmeters and a High Torque General Electric test meter. There is also a considerable and increasing assortment of auxiliary testing apparatus, such as synchronism indicators, power factor indicators, frequency indicators, etc.

For direct current testing, there is a large and increasing collection of Weston instruments, both voltmeters and ammeters, of suitable ranges and grades of precision, while the measurement of unusual currents and voltages is ensured by three Weston millivoltmeters with an assortment of standard shunts and multiplying resistances of various orders of magnitude.

There is also the usual assortment of testing devices, such as speed indicators, tachometers, brakes, loading resistances and the numerous minor pieces of apparatus needed in practical testing and operating of electrical machinery.

Among the machines of this Department, are a pair of specially made, matched machines arranged to run as single phase, two, or three, phase generators, or motors, as well as synchronous transformers, double current generators, or on the Direct Current side as shunt, series, or compound generators, either two or three wire, or as motors.

There are also a 15 horse power 230-volt Westinghouse motor, a new General Electric 10 horse power Interpole 230-volt motor, a 500-volt generator, two 500-volt series, and several 500-volt shunt motors, and a series parallel controller.

A 45 K. V. A., 60-cycle, single phase, 500-volt generator giving a practically pure sine wave, three General Electric Type H transformers of 5 K. V. A. capacity, a $7\frac{1}{2}$ K. V. A. special General Electric 60-cycle 250-volt alternator, with

revolving field tapped for either 1, 2, 3 (star or mesh connection) 6 or 12 phase connection, which may be operated (by the substitution of special rotors) also as a synchronous, or induction motor, or a frequency changer. It is intended, in the near future, to add a duplicate of this machine with another interpole motor to drive it, thus obtaining a matched pair of machines, which, with the transformers, will enable a very wide range of alternating current experimentation to be carried out.

There is also available for advanced instruction, in co-operation with the Mechanical Department, the four three-wire generators (two driven by reciprocating engines and two by Westinghouse-Parsons turbines) in the main generating plant of the Association.

LIBRARIES

There is in connection with the School a professional library containing books pertaining to both the school work of the boys and to their practical work. In addition to this there also are current periodicals on engineering and scientific subjects for their exclusive use.

DEPARTMENT OF PHYSICAL TRAINING

Our new gymnasium with all the latest modern equipment gives ample accommodation for all students.

There is a running track on the grounds adjoining, together with tennis and hand ball courts; also a large natatorium where swimming is taught by competent instructors.

In connection with this Department, there are also six excellent bowling alleys, which may be used by the students upon the payment of a nominal fee.

Additional Information

The School reserves the right to retain for its annual exhibition, and for any other purpose which it may deem necessary, drawings made by students.

Scholarships.

As an aid to worthy men who desire an education and are unable to pay in full even our slight charges, a limited number of scholarships have been provided, which will be judiciously distributed by the Educational Committee, to whom application should be made.

Entrance Requirements.

Any man of good character, regardless of age, occupation or creed, with adequate general education may be enrolled in the School.

A student may elect any subject, or combination of subjects, which best serves his particular needs. However, to prevent loss of time and expense to the student, he will not be allowed to elect courses which, on account of inadequate preliminary training and experience, he could not pursue with profit. The Dean should be consulted before registration.

Certificates.

Upon the satisfactory completion of any of the regular, or special courses, the student is entitled to receive a certificate. No certificates will be given, however, unless the student has successfully performed the prescribed work and passed the necessary examinations.

Suburban Members.

All tickets held by members of the Cambridge, Chelsea, Everett, Lynn, Malden, Melrose, Newton, Quincy, Salem and Somerville Associations, will be honored for membership in the Boston Association.

Schedule of Rates

Courses I and II (Chemistry and Electrical Engineering).

First year, \$35, including membership, payable as follows:—\$15 upon entering, \$10 November 15, and \$10 January 15.

Second, third and fourth years, \$50 each, including membership, payable as follows:—\$20 upon entering, \$15 November 15, and \$15 January 15.

Courses III, IV and V (Structural, Railroad and Municipal Engineering).

First year \$30, including membership, payable as follows:—\$10 upon entering, \$10 November 15, and \$10 January 15.

Second, third and fourth years, \$50 each, including membership, payable as follows:—\$20 upon entering, \$15 November 15, and \$15 January 15.

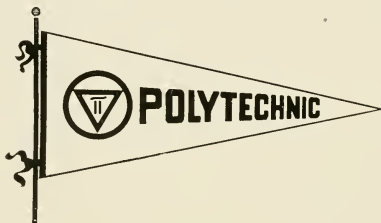
Special Note—The following rates are in addition to membership (\$2). In case more than one course is taken, a discount of \$3 for each additional course will be made.

Course	Tuition	Course	Tuition
52 Advanced Structures	\$24.00	12 Life Class	\$20.00
57 Advanced Surveying	24.00	5 Machine Drawing	11.00
33 Alternating Currents I	13.00	58 Materials of Construction	24.00
34 Alternating Currents II	18.00	1 Mathematics I	13.00
35 Alternating Currents III	18.00	2 Mathematics II	18.00
65 Applied Mechanics	18.00	3 Mechanical Drawing I	
6 Architectural Drawing I	9.00	4 Mechanical Drawing II	9.00
7 Architectural Drawing II	9.00	63 Municipal Engineering	24.00
8 Architectural Drawing III	13.00	19 Organic Chemistry Prob.	50.00
48 Bridge Design	24.00	13 Physics	18.00
38 Central and Substations	24.00	39 Power Transmission	13.00
30 Direct Current Practice	24.00	16 Qualitative Analysis	32.00
24 Electricity Ia	13.00	64 Railroad Engineering	28.00
25 Electricity Ib	13.00	53 Reinforced Concrete	24.00
26 Electricity IIa	13.00	62 Sanitary Engineering	24.00
27 Electricity IIb	18.00	55 Stereotomy	18.00
28 Electricity III	18.00	51 Strength of Materials	24.00
29 Electricity IV	18.00	47 Structural Design	24.00
40 Electric Railways	20.00	46 Structural Drawing	24.00
45 Elementary Mechanics	13.00	49 Structural Mechanics	24.00
59 Foundations	13.00	56 Surveying and Plotting	24.00
9 Freehand Drawing I	8.00	31 Switchboards and Apparatus	18.00
10 Freehand Drawing II	8.00	20 Technical Analysis	25.00
18 Gravimetric Analysis	25.00	36 Tech. Elect. Measurements I	18.00
41 Heat Engineering	18.00	37 Tech. Elect. Measurements II	18.00
60 Highways	18.00	21 Theoretical Chemistry I	18.00
61 Hydraulics	18.00	22 Theoretical Chemistry II	18.00
42 Hydraulic Motors	18.00	50 Theory of Structures	24.00
11 Industrial Design	8.00	54 Topographical Drawing	18.00
23 Industrial Chemistry	18.00	17 Volumetric Analysis	16.00
14, 15 Inorganic Chemistry	24.00	32 Wiring and Nat. Code	18.00

The tuition for all courses payable in advance unless stated to the contrary, in which case times of payment are indicated. Numbers preceding courses refer to description of courses, pages 16 to 41.

Students who discontinue a course, but who have attended four or more recitations in the subject, will be required to pay a term's tuition.

No student is permitted to transfer from one course to another without consulting the Dean beforehand and receiving a transfer order which must be presented at the main office for the proper ticket.



POLYTECHNIC ASSOCIATION

This is an organization formed and managed by the students. Its object is to provide social gatherings for the Polytechnic students, and to establish a bond of friendship among the men.

All men entering the Polytechnic School may join this association by filling out the proper blank at the educational office. Membership is free.

A school pin, pennant and engraved stationery with Polytechnic design may be ordered by the members.

The present board of officers are planning a number of entertainments and a lively season for 1914-15.

OFFICERS FOR 1914-15

R. R. GREENLEAF, *Pres.*

M. I. MORANDA, *Vice Pres.*

N. J. BUSBY, *Sec.*

P. A. WAKEMAN, *Treas.*

GENERAL DEPARTMENTS

DEPARTMENT OF PHYSICAL WORK

ALBERT E. GARLAND, M.D., B.P.E., Director

The Physical Department is under the best supervision and the aim is to better fit men for their life work by increasing their efficiency, through exercise. We offer: Well equipped gymnasiums, Recreative, Hygienic and Educational Gymnastics. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts.

DEPARTMENT OF RELIGIOUS WORK

EDWIN W. PEIRCE, Director

In order that a young man may secure a well-balanced development and attain a spiritual foundation for successful life work, the Association advises each member in planning his schedule to enter into one or more of the following activities:—

Bible Study, Sunday Meetings of Men, Personal Service Groups and The Twenty-Four-Hour-A-Day Club.

DEPARTMENT OF SOCIAL WORK

DAVID M. CLAGHORN, Director

The attention of members is called to the many opportunities in the Association for social service, and the following social features.

A Newly Equipped Game Room. The Popular Novel Club.
The Association Congress. The Land and Water Club.
Popular Social Evenings.

DEPARTMENT OF EMPLOYMENT

FREDERICK W. ROBINSON, Director

The Employment Department is, in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25 per cent discount from the legal rates and special effort is made to notify them when good positions are open.

BOYS' DEPARTMENT

DON S. GATES, A.B., City Secretary

The physical, social, employment and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men, as stated above. Membership dues for the boys range from one to six dollars, according to the privileges desired.

EVANGELICAL LAW SCHOOL

FOUNDED IN 1843

1871-1875



DUBLIN 1883 NEW'S CHRISTIAN ASSOCIATION

DEPARTMENT OF EDUCATION

Boston Young Men's Christian Association

EVENING LAW SCHOOL

Evening Sessions Only

Established in 1898; incorporated in 1904. Provides a four years' course in preparation for the Bar and grants the Degree of Bachelor of Laws.

SCHOOL OF COMMERCE AND FINANCE

Evening Sessions

Established 1907; incorporated 1911. Offers the following four-year courses leading to the degree of B. C. S. (Bachelor of Commercial Science): Banking, Business Administration, Finance and Bond Salesmanship, and Professional Accountancy. Any one passing the examination for advanced standing, is enabled to complete any one of the four regular courses and secure the degree in three years. Special courses in addition to regular courses.

CO-OPERATIVE ENGINEERING SCHOOL

Day Sessions

Four-year courses of college grade in Chemistry, Mechanical, Civil Engineering, etc., in co-operation with business firms. Students earn while learning. Open to High School graduates.

HUNTINGTON SCHOOL

Day Sessions

A high-grade school, consisting of a Grammar Department (5th, 6th, 7th and 8th grades), a Preparatory Department, fitting for the Colleges, Medical and Dental Schools, Massachusetts Institute of Technology, Annapolis, West Point, Lowell School for Industrial Foremen, Law Schools and the classified Civil Service, and a Technical Department, fitting for positions along engineering lines.

PREPARATORY SCHOOL

Evening Sessions

A school of high school grade preparing students for Colleges, Scientific Schools, West Point, Annapolis, Lowell School for Industrial Foremen, and our professional schools.

SCHOOL OF BUSINESS

Day and Evening Sessions

Offers all of the courses of the regular Business School program, and additional cultural courses, preparing for business and admission to our School of Commerce and Finance.

POLYTECHNIC SCHOOL

(COLLEGE GRADE)

Evening Sessions

A school offering three and four-year courses in Chemistry, Chemical, Electrical, Structural, Railroad, and Municipal Engineering.

SCHOOL OF AUTOMOBILE ENGINEERING

Day and Evening Sessions

Deals with the construction, care, repair and operation of all types of gasoline vehicles; a large staff of teachers; ample equipment and garage.

For further information concerning any of the above schools, or departments, address the Director of Education,

FRANK PALMER SPEARE

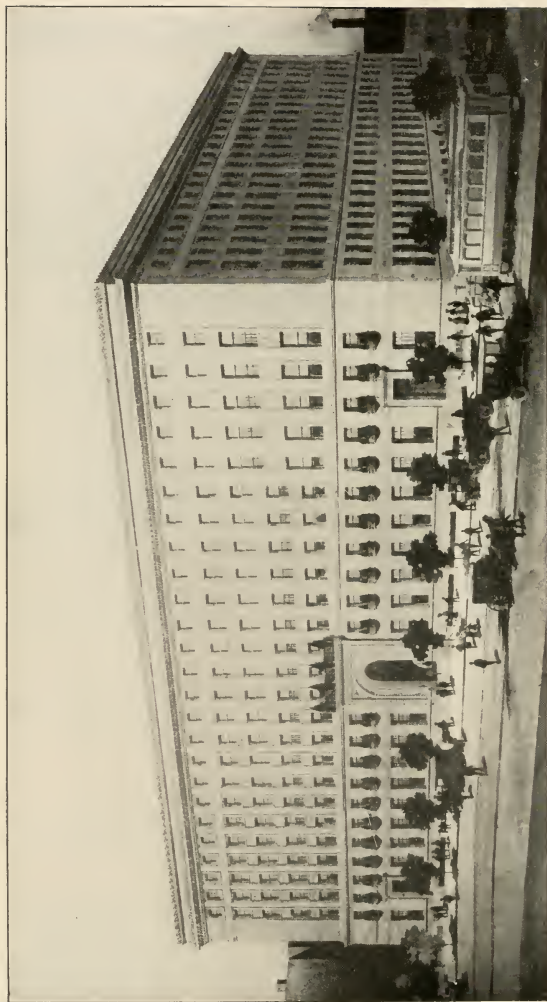
316 Huntington Avenue, Boston, Mass.

Telephone, Back Bay 4400.

**EVENING
LAW SCHOOL**
SEVENTEENTH YEAR
1914-1915

This catalogue is unlike any issued heretofore by the Association Evening Law School. The change has been made owing to the large number of inquiries received from remote points and a desire to anticipate questions arising in the minds of inquirers which have occasioned a voluminous correspondence and much delay.

BOSTON, MASSACHUSETTS
Published by the
YOUNG MEN'S CHRISTIAN ASSOCIATION
316 Huntington Avenue
Boston, Mass.
1914-1915



OUR NEW HOME

The above cut represents the new million dollar Association Building, 312 Huntington Ave., Boston, Mass. It contains among other features, school accommodations for 3000 students, a fine gymnasium, bowling alleys, swimming pool, cafe, dormitories, shops and laboratories, camera club rooms, social and recreation rooms and auditoriums.

Calendar

1914

Aug. 31-Sept. 4	Condition Examinations
Sept. 8-19	Registration
Sept. 9	Senior Class Lectures begin
Sept. 21	Lectures begin
Sept. 28	Freshman Reception
Oct. 12	Columbus Day
Nov. 26	Thanksgiving Day
Dec. 18	Joint Social, Law School and School of Commerce and Finance
Dec. 19-26	Christmas Recess

1915

Feb. 22	Washington's Birthday
April 19	Patriot's Day
May 30	Memorial Day
June 13	Baccalaureate Address
June 15	Commencement

Additional social features will be announced from time to time.

CONDITION EXAMINATIONS, 1914

Monday, Aug. 31	Criminal Law, Property I, Corporations
Tuesday, Sept. 1	Torts, Equity I, Property II (Deeds)
Wednesday, Sept. 2	Common Law Pleading, Agency, Evidence, Partnership
Thursday, Sept. 3	Contracts, Bills and Notes, Equity II
Friday, Sept. 4	Sales, Wills, Massachusetts Practice

Examinations must be taken at the time scheduled, as no special examinations will be given.

Officers of Administration

BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

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D. CHAUNCEY BREWER

ROBERT G. DODGE

FRANCIS B. SEARS

ARTHUR S. JOHNSON

The annual election had not been held at the time of going to press.

Faculty and Special Lectures

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ASA SAMUEL ALLEN, LL.B., *Assistant Dean*

GALEN DAVID LIGHT, A.B., *Secretary*

W. LLYOD ALLEN, A.B., J.B.

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WILLIAM EDWIN DORMAN, A.B., LL.B.

Constitutional Law

GUY HAROLD HOLLIDAY, A.B., LL.B.

Common Law Pleading

HENRY TILTON LUMMUS, LL.B.

Court Practice and Moot Court

HUGH DEAN McLELLAN, A.B., LL.B.

Contracts

GUY NEWHALL, A.B., LL.B.

Property III

CLARENCE LUCIAN NEWTON, Ph.B., J.M.

Corporations and Property II

RAYMOND TASKER PARKE, A.M., LL.B.

Bills and Notes, and Sales

EDWARD HENRY RUBY, A.B.

Mass. Practice and Bankruptcy

OSCAR STORER, A.B., LL.B.

Torts and Evidence

SYDNEY RUSSELL WRIGHTINGTON, A.B., LL.B.
Partnership

ARTHUR A. BALLANTINE, A.B., LL.B.
Of Gaston, Snow & Saltonstall

SAMUEL C. BENNETT, A.B., LL.B.
Attorney at Law

HOWARD W. BROWN, LL.B.
Of Davis, Peabody & Brown

ALBERT P. CARTER, A.B., LL.B.
Attorney at Law

ROBERT CUSHMAN, A.B., LL.B.
Of Roberts, Roberts & Cushman

ROBERT G. DODGE, A.M., LL.B.
Of Storey, Thorndike, Palmer & Dodge

FRED T. FIELD, A.B., LL.B.
Attorney at Law

ARTHUR D. HILL, A.B., LL.B.
Of Hill, Barlow & Homans

FAY B. KENDALL, LL.B.
Attorney at Law

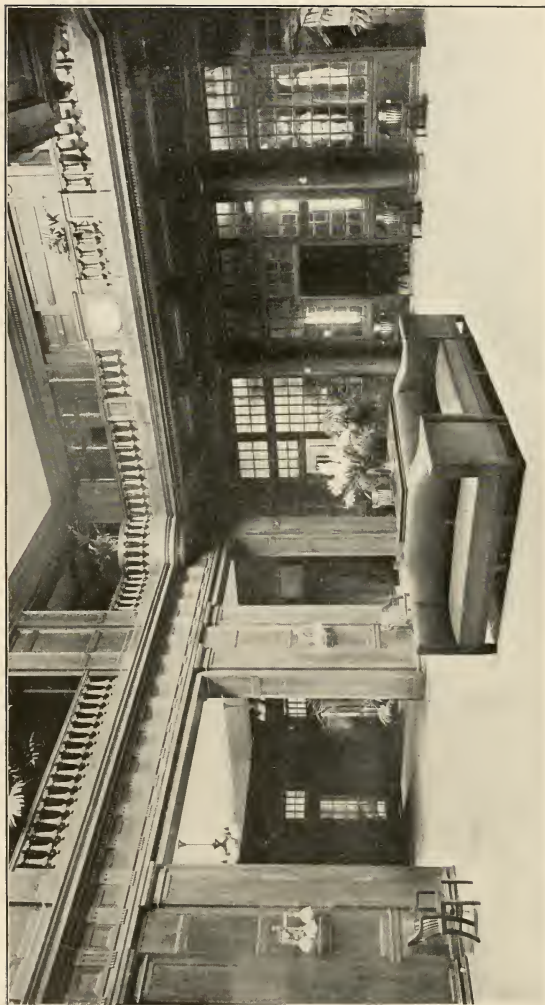
EDWARD F. McCLENNEN, LL.B.
Of Brandeis, Dunbar & Nutter

HUGH W. OGDEN, A.M., LL.B.
Of Whipple, Sears & Ogden

CHANDLER M. WOOD, A.M., J.M.
Attorney at Law

JOHN S. PATTON, JR., A.B., LL.B., *Counselor*
LEAH M. CROWELL, *Recorder*

EDWIN O. PATCH, *Librarian*
HARRY H. BUTLER, *Assistant Librarian*
EUGENE F. WERMUTH, *Assistant Librarian*



LOBBY

The Study of Law

Statistics show a larger number of men attending the American Law Schools than any other type of professional school, and this in spite of the fact that the profession is called over-crowded.

This class of unusually intelligent men would not decide upon the law unless there were inducements to join in what is often the keenest competition. The reasons are plain, however to one in touch with industrial, commercial and political life and may be summed up as follows. The law, treating of every phase of human relationship, fits the student in a most unusual manner to deal with men and affairs, trains him to think, to think straight, to think a proposition clear through to the end and then to act in accordance with judgment based on a clean-cut analysis of the facts, pro and con. This habit of analytical thinking and judicial action is indispensable to the practitioner of law and of equal importance to the business man and those in political life, and accounts in large measure for the marked success attending legally trained men in these lines of activity and the large number constantly going from the Law Schools into diversified occupations.

Another valuable feature of the study of law, quite apart from most subjects, is the fact that one begins to grow as soon as he begins to study and his progress may be noted from the outset, while the frequent application of the things learned is most strikingly evident to the business man. A law course, therefore, like money on interest, begins to yield a return from the beginning which rolls up month by month. The student of law if obliged to withdraw after a limited period finds himself stronger, broader, more intelligent and logical in his reasoning and acts. These facts have become known to thousands of men and have led to the heavy attendance in reputable schools.

Massachusetts has maintained two of the most prominent day law schools in America for a great many years, the ones at Harvard and Boston Universities. There are, however, a large number of ambitious and competent men who are employed during the day and cannot enter these universities.

Through the co-operation of three of the leading teachers and practitioners of law, the Association Evening Law School was established and developed. Its success has been noteworthy and has earned for it the warm commendation of those familiar with the facts. Being part of a great educational system and wholly devoid of commercialism, it has been able to establish standards and maintain a grade of entrance examination and graduation which have won for it a high position among American Law Schools. Its methods are progressive, modern and in accordance with the best practice. Its faculty are honor men of the great day schools who have not only graduated with high rank after completing an extended course in the university and law school, but have achieved success in the profession. The notable list of men on the faculty attests to the quality of work done by the school and its position among the members of the Bar.

The work of all the Association schools is absolutely non-sectarian and any man of good character, regardless of his financial or social standing or creed, is admitted on an equal footing. No evening Law School could work under better conditions and none has achieved a more enviable reputation.

Close investigation is invited by all those interested in the study of law and every opportunity will be afforded to inspect thoroughly the school, its methods, courses of study, past examination papers, lists of graduates and their present occupations.

A recent questionnaire sent to our alumni following the idea of the one issued by the Harvard Law School has shown a most gratifying advance made by our graduates in the profession, business and political life of the country and many of the men have become prominent and extremely useful.



LAW LIBRARY

Historical Review

The Association Law School was established in 1898 in response to a demand for a school, which should be so thorough in its work and conducted on such a high plane that its graduates would stand well at the Bar and be recognized as men of professional attainment and ethical standards.

Every effort has been made to establish and maintain high standards of entrance and graduation. A four years' course was announced at the outset in order that those desiring a short cut to the Bar might be deterred from entering. Students have been able, after two years of study, to pass the Bar examinations, but no official reference has ever been made to this fact, and the men have been prohibited from attempting any such intensified and necessarily superficial procedure.

The student body consists of men of ability who devote themselves to their work with marked fidelity, and upon graduation pass the Bar examinations successfully and enter practice.

The school was established through the co-operation of the Hon. James R. Dunbar, the late Prof. James Barr Ames, Dean of the Harvard Law School and Mr. Samuel C. Bennett, then Dean of the Boston University Law School. Under the direction of this board of advisors the School was organized.

Successful Career

Being thus auspiciously inaugurated, the first evening law school of Massachusetts entered upon what proved to be a most successful career. Twenty-two hundred and seventy-three students have been enrolled, including clerks from the offices of leading attorneys; clerks and officers from every court in Boston; state, city and government officials; teachers and students from other law schools, in addition to a large number of able men engaged in different lines of business.

Incorporation

In January, 1904, a bill was introduced into the Massachusetts Legislature seeking the incorporation of the school

with the power to grant the degree of Bachelor of Laws. The rapid passage of this bill by the Legislature and the cordial recognition and endorsement of the school by the Bench, Bar and heads of our great day law and other professional schools, testify in no uncertain tones to the position the school occupies in the educational activities of the Commonwealth.

High Standards

The work of the past sixteen years has been characterized by strict and impartial administration, expert instruction and devotion on the part of the students. The success of our graduates in passing the Bar examinations, over 90 per cent. of them having been successful in this and other states, and later in practice, has amply justified what may at times have seemed to be undue severity.

If passing the Bar examination were the only end to be attained, the work would be less difficult, but reputable institutions concern themselves much more with the future prospects of their students than with the fitting of any number of men for certain tests; and to this end the courses as herein announced were arranged to duplicate as nearly as possible those of the best day law schools.

The study of law requires diligent application and regular attendance at the lectures and other exercises of the school; also a large amount of reading and thought in order to comprehend clearly and to assimilate properly the many difficult problems presented. A successful lawyer must have not only a thorough knowledge of the law, but the power to apply that knowledge in each particular case, no matter how complicated the conditions may be; and it is this latter phase of the profession's requirements that makes hasty preparation of so little value to one who hopes to be successful in active practice; for, though he may in this way gain admission to the Bar, he will be incompetent to give counsel worthy the name.

Method of Instruction

There are three methods of instruction employed by law schools: the lecture method, in which the instructor gives a

presentation exercise and assigns cases to be read in relation thereto; the case method, in which cases are assigned to be read in advance which are then discussed in class and commented upon; and a combination of these two systems, in which the instructor gives a lecture or presentation of the essentials, followed by the discussion of cases previously read.

Sixteen years' experience has led the Association Law School to adopt a modification of the latter method, namely: lecture, citation and discussion, followed by a quiz. In addition, special quizzes are held several times each week by regular quiz masters, whose duty is to review the work of preceding lectures, clear up the difficult points, and assist those who require aid. The value of this method is clearly demonstrated by the success of our students at the Bar examinations and later in practice.

The New Year

The school enters upon the work of 1914-15 better housed, equipped and organized than ever before. The faculty includes several additions of prominent practitioners who have achieved success in teaching and practice.

Greeting

Students who desire the best, who are willing to sacrifice and work for a great ideal are invited to join our ranks. Success has come in large measure to the hundreds who have completed our courses, graduated and entered practice. It will come to you if earned. Our pleasure and privilege is to extend the hand of fellowship and assistance.

Requirements for Admission

All applicants for admission to the school must present satisfactory evidence of moral character and must be at least eighteen years of age, for admission to the work of the first year class. Graduates of colleges, technical schools, and four year courses in high schools of good standing are admitted without examination upon presentation of certificates or diploma.

Those who enter as candidates for the degree and are not high school graduates, but have attended high school for one or more terms, must present their credentials to the Chairman of the Committee on Admission to be passed upon. He will prescribe the necessary work to fulfil the entrance requirements. When no high school work has been done, all of the following work is exacted:

I. English

Reading and study similar to that required by the College Entrance Examination Board. A detailed description of the English work can be found in the catalogue of the Preparatory School.

II. Latin or French

Latin — Beginners' Latin Lessons completed and the equivalent of the first four books of Cæsar's "Gallic War."

French — Knowledge of the ordinary forms of construction; ability to translate simple prose and to compose in the language simple sentences based upon the matter read.

III. Mathematics

Algebra, sufficient to include radical forms and quadratic equations of two unknown quantities.

IV. History

The history and civil government of Massachusetts and the United States.

V. General Subjects

Any two of the following:

1. Physics. General elementary course.
2. Chemistry. General elementary course.

3. Physiology. General elementary course.
4. Physical Geography. General elementary course.
5. Plane Geometry. Five books.
6. German (two units). Same as French.
7. Economics. Elementary course covering the principles of Economics.
8. Ancient History. History of the ancient world up to 800 A.D.
9. Spanish (two units). Same as French.
10. Mechanical Drawing. A course covering the elements of drafting, such as is usually given in six hours a week during a school year.
11. Bookkeeping. Double Entry.
12. Stenography. Principles of a standard system and ability to write one hundred words a minute.

EVENING PREPARATORY SCHOOL

The Evening Preparatory School of the Department of Education has been in operation for a number of years and has fitted a great many men for the colleges, universities and Bar. Its diploma is accepted by the Bar Examiners as sufficient preparation. The school is in operation throughout the entire year, making it possible for law students to remove their academic conditions when the Law School is not in session. All conditions must be removed before entering the Senior Class of the Law School. A special pamphlet is issued by this school which may be obtained upon application. Appointments are made by addressing, The Evening Preparatory School or by telephoning Back Bay 4400.

Advanced Standing

Candidates for admission to advanced standing, will file their applications and credentials regarding previous study of law with the Dean.

Students from other law schools, applying as above, will be required to present a letter from the Deans of said schools regarding their standing and general work.

Special students as announced hereafter, will be admitted to the Law School under certain conditions at the discretion of the Dean.

SPECIAL NOTICE. Owing to the delay each year on the part of the students and the consequent rush on the opening night, those desiring admission are requested to register during the two weeks previous to the opening of the school.

For application blanks for admission to the school, or for further information, address the Dean of the Law School.

REQUIREMENTS FOR THE DEGREE

The requirements for the degree of Bachelor of Laws in point of age, period of attendance at the school, and the passing of examinations, are as follows:

At the time of receiving the degree one must have attained the age of twenty-one years.

The required period of attendance at the school is four years. One or two years' attendance at a three-year day law school may be counted as a part of the four years, but all of the examinations of the four years must be passed.

The right to take examinations, as well as the privilege of continuing one's membership in the school at any time, is conditioned upon regular attendance at the exercises of the school. Attendance at 75 per cent of the lectures in each course is required. Those failing to attend 75 per cent will be required to attain 70 as a passing mark in that subject.

All examinations must be taken at the time scheduled, and no student is allowed to present himself for examination more than once in the same subject, provided he passes at the first trial. If, for good and sufficient reason, a student finds that he will be unable to take an examination at the time scheduled, he must previously obtain permission from the Dean to take said examination at the second trial.

No student who has more than one condition standing against him on the work of the first two years will be allowed to register as a regular third-year student, and no student having any condition will be admitted as a regular student to the fourth year. He may, however, although registered as a third-year student, take and be credited with a limited number of fourth-year subjects, the number varying according to the number of his conditions.

No student who fails on account of conditions to receive his degree in due course will be permitted, except by special vote of the faculty, to remove his conditions later than two years after the graduation of his regular class.

Every person who, while a member of the school, passes a satisfactory examination in one or more subjects will be entitled to a certificate, stating the length of time he has been a member of the school, and specifying the subjects in which he has passed.

Special Students

Less than 10 per cent of the men of America graduate from high schools. When any of the remaining 90 per cent, after school age, wish to take up a profession in an evening school, they find it necessary to make up more or less high school work. Should any work of this kind be necessary, the student enters the Law School under the caption, "special student" and while taking the regular work with his class remains under this classification until his academic conditions are wholly removed.

Law schools and colleges dealing with students who come directly from the high school and who have been prepared specifically for college examinations, can be more or less arbitrary in their admission requirements, but they are becoming less so, are allowing substitutions and equivalents and instead of barring out worthy young men, are taking a much more lenient attitude and encouraging their attendance. An Evening School dealing largely with men beyond high school age seeks to be as helpful as possible to men who have been deprived of extensive educational opportunities and is justified in admitting those who though not fully prepared along academic lines, are, in the opinion of the faculty, men of promise, aptitude and ambition and willing to meet all requirements.

The Association Law School management takes this attitude and while requiring every student who is a candidate for the degree to remove all academic conditions before entering the senior class, admits capable men who are not high school graduates and then, through the Evening Preparatory School, enables them to make up these deficiencies in a thoroughly satisfactory manner. The wisdom of this procedure has been shown by the high degree of scholarship displayed by such students, the ease with which they have passed the Bar examinations and their success in the profession.

Each case is decided on its merits after conference and an investigation of the applicant's school and business experience.

Program of Instruction

FIRST YEAR

Torts

MR. STORER Monday, throughout the year, 7.15-8.45

Common Law Pleading

MR. HOLLIDAY Tuesday, first half-year, 7.15-8.45

Criminal Law

MR. BARRETT Tuesday, second half-year, 7.15-8.45

Contracts

MR. McLELLAN Thursday, throughout the year, 7.15-8.45

SECOND YEAR

Property I

MR. BROWN Monday, throughout the year, first half-year, 7.00-8.15; second half-year, 7.15-8.45

Agency

MR. W. LLOYD ALLEN Monday, first half-year, 8.15-9.30

Bills and Notes

MR. PARKE Wednesday, first half-year, 7.15-8.45

Sales

MR. PARKE Wednesday, second half-year, 7.15-8.45

Equity I

MR. BARNEY Friday, throughout the year, 7.15-8.45

THIRD YEAR

Corporations

MR. NEWTON Monday, throughout the year, first half-year, 7.00-8.15; second half-year, 7.15-8.45

Partnership

MR. WRIGHTINGTON Monday, first half-year, 8.15-9.30

Equity II and Suretyship

MR. BARNEY Wednesday, throughout the year, 7.15-8.45

Property II and Wills

MR. NEWTON Friday, throughout the year, 7.15-8.45

FOURTH YEAR

Bankruptcy

MR. RUBY Monday, first half-year, 7.15-8.45

Massachusetts Practice

MR. RUBY Monday, second half-year, 7.00-8.15

Moot Court

JUDGE LUMMUS Monday, second half-year, 8.15-9.30

Evidence

MR. STORER Wednesday, throughout the year, 7.15-8.45

Constitutional Law

MR. DORMAN Friday, first half-year, 7.00-8.15

Property III

MR. NEWHALL Friday, first half-year, 8.15-9.30, second
half-year, 7.15-8.45

The lectures have been scheduled 15 minutes later than last year in order to extend the time devoted to the quizzes which have been found so extremely helpful.



BILLIARD ROOM



RESTAURANT

Outline of Courses

FIRST YEAR

Torts

General principles; assault and battery; false imprisonment; trespass; conversion; slander and libel; enticement and seduction; deceit; slander of title; malicious prosecution; negligence, and incidental points.

Bigelow on Torts.

Ames' and Smith's Cases on Torts.

Chase's Cases on Torts.

Simpson's Cases on Torts.

Contracts

Offer and acceptance; consideration; performance of, or promise to perform non-contract obligation as consideration; moral obligation as consideration; antecedent act or agreement as consideration; parties to a contract, including aliens, executors and administrators, guardians, infants, insane persons, intoxicated persons and married women; omitting agents, corporations and partners on account of these subjects being given in other courses; contracts under seal, including the form, requisites thereof, delivery and the matter of consideration; rights of beneficiaries under a contract; rights of assignees of a contract; conditional and unconditional contracts; rescission of contracts; damages for breach of contract.

Keener's Cases on Contracts.

Criminal Law

Sources of criminal law; nature of crime; common law and statutory offences; criminal acts; intent in general, and as affected by circumstances, such as insanity, intoxication, infancy, coercion, ignorance or mistake; justification; necessity; agency; consent; condonation; contributory acts; domestic relations; parties in crime; jurisdiction.

Crimes against the person; against property; against public policy; health; peace; justice; decency and morality.

Criminal procedure; arrest; extradition; examination and bail; indictment and criminal pleading; trial; evidence; proceedings after verdict; error.

Beale's Cases on Criminal Law.

Pleading

Common law pleading; common law actions; pleadings; their history, form and effect; the rules of pleading.

Whittier's Cases on Common Law Pleading.

Stephen on Pleading.

SECOND YEAR

Equity I

Nature and limits of jurisdiction; the jury in equity; equitable parties; the maxims; conversion; accident, mistake and fraud; accounting, subrogation and other pecuniary remedies; specific performance of affirmative and negative contracts, including part performance, partial performance with compensation, defenses; specific reparation and prevention of torts by injunction, including particularly jurisdiction in waste, trespass, nuisance and in industrial disputes.

Ames' Cases on Equity Jurisdiction, Vol. I, Parts 1-6.

Property I

Distinction between real and personal property; nature and acquisition of rights and personal property; acquisition of rights not under former owner; transfer of rights in personal property; possession of personal property; tenure in general; division of estates; seizin and conveyances to uses and trusts; mines; wild animals; border trees; emblements; fixtures; waste; rights in another's land; natural rights; easements; covenants running with the land; public rights; franchises; rents.

Gray's Cases on Property, Vol. I and II (Second Edition).

Bills and Notes

The provisions of Revised Laws of Massachusetts, Chapter 73 (Negotiable Instruments Law). Formal requisites of negotiable and non-negotiable bills of exchange, checks and notes; obligations and rights of the various parties to such instruments,

makers, acceptors, drawers, drawees, payees, indorsers and indorsees; suits upon bills and notes; pleading and defences; accommodation paper; guaranty and generally of the transfer, indorsement and extinguishment of bills and notes.

Revised Laws of Massachusetts, Chapter 73.

Colson's Hufcut on Negotiable Instruments, Second Edition.

Norton on Bills and Notes, Third Edition.

Sales

The provisions of the Sales Act, Acts of 1908, Massachusetts, Chapter 237, codifying the Massachusetts law of sales of personal property. Sales and mortgages of personal property; subject matter of sales; when title passes; risk of loss; rights and remedies of seller and buyer in executed, executory and conditional contracts of sale; warranties of title and quality; seller's lien and stoppage *in transitu*; bills of lading and other documents of title; fraud; statute of frauds; factors and recording acts; actions and defences.

Massachusetts Acts of 1908, Chapter 237.

Woodward's Cases on Sales.

Benjamin on Sales, 7th American Edition.

Tiffany on Sales, Second Edition.

Williston on Sales, 1909 Edition.

Agency

Nature of the relation, its creation and termination; duties, rights and liabilities of principal and agent *inter se* and as regards third persons; the doctrine of undisclosed principal; ratification.

Wambaugh's Cases on Agency.

THIRD YEAR

Equity II

(a) The principal part of this course covers the subject of private trusts as treated in Ames' Cases on Trusts and deals with the following topics: the nature and requisites of a trust; the nature of the *cestui que* trust's interest; the transfer of trust property; the extinguishment of a trust; the duties of a trustee.

Ames' Cases on Trusts.

Property II

Acquisition of real property *inter vivos*; original acquisition; lapse of time; statute of limitations; prescription; form of conveyance; description of property granted; boundaries; estates created; incorporeal hereditaments; covenants for title; execution of deeds; signing and sealing; delivery; estoppel; dedication.

Wills

Kinds of wills; testamentary power; beneficiaries; property given; who may make a will; contract to make a will; form of will; incorporation of outside documents; signing; witnesses; publication; mistake; fraud; undue influence; revocation; re-publication; grant of probate and administration; the estate of an executor or administrator; alienation of administrators and executors; legacies; distribution; construction.

Costigan's Cases on Wills.

Gray's Cases on Property, Vol. III (Second Edition).

Corporations

Nature of a corporation; difference between corporation and partnership; distinction between stockholders and corporation; promotion of corporations; formation of corporations; corporations *de jure*; corporations *de facto*; dissolution of corporations; interpretation of charters; powers of a corporation; doctrine of *ultra vires*; liability for torts and crimes; corporation and the State; shares of stock, dividends; rights of stockholders; stockholders' liabilities; foreign corporations; voting rights of stockholders; voting trusts; rights and liabilities of directors and officers; rights and remedies of creditors against property of corporations.

Canfield and Wormser's Cases on Private Corporations.

Partnership

The creation of a partnership; *quasi* or nominal partners; the partnership property and the interest of a partner therein; rights and remedies of creditors; the power of a partner to act

in behalf of the partnership, before and after dissolution; rights and duties between partners *inter se* and actions between partners; dissolution and termination of partnership; accounting and distribution.

Ames' Cases on Partnership.

George on Partnership.

Lindley on Partnership.

Suretyship

Comprising the rights and obligations subsisting among the three parties involved in a suretyship transaction, namely, principal obligor, surety and obligee.

Ames' Cases on Suretyship.

FOURTH YEAR

Evidence

Judicial notice; judge and jury, or law and fact; burden of proof; presumptions; admissions; confessions; principles of exclusion; relevancy; character evidence; hearsay evidence and exceptions thereto, including declarations as to matters of pedigree, matters of public interest, public records, declarations in regular course of business, account-books, declarations against interest, *res gestae*, dying declarations, declarations made under oath, declarations showing physical or mental conditions; opinion evidence; best evidence; writings as evidence; examination of witnesses.

Greenleaf on Evidence.

McKelvey on Evidence.

Thayer's Cases on Evidence.

Wilgus' Cases on Evidence.

Property III

First half-year: Conditional and future interests in real and personal property, including conditional estates, reversions and remainders, rule in Shelley's Case, and rule against perpetuities; forfeiture and restraints on alienation.

Second half-year: Priority and registration, mortgages, landlord and tenant, and joint ownership.

Gray's Cases on Property, Vol. V and VI.

Gray's Rule against Perpetuities.

Gray's Restraints on the Alienation of Property.

Constitutional Law

Written and unwritten constitutions; history and sources of written constitutions in the United States, state and national; establishing and amending constitutions; distribution of powers between the national and state governments; distribution of powers among the three departments; theory and consequences of this distribution; the judicial department; nature of judicial power; power of the courts to declare void an act of the legislature or of the executive; jurisdiction of the federal government, criminal and civil; express, implied and resulting powers; citizenship; civil and political rights; the police power; the right of eminent domain; taxation; impairment of contracts, *ex post facto* and retrospective legislation generally; regulation of commerce.

Thayer's Cases on Constitutional Law.

Cooley's Principles of Constitutional Law.

McClain's Cases on Constitutional Law.

Boyd's Cases on Constitutional Law.

Bankruptcy

A historical sketch of bankruptcy legislation both in England and the United States; the operation and effect of State Insolvency Laws in their relation to Federal Bankruptcy Acts; a brief discussion of the law covering conveyances; principally, however, a discussion of the United States Bankruptcy Law of 1898 and amendments thereto and of the interpretation of that law.

United States Bankruptcy Act of 1898, with amendments.

Collier on Bankruptcy.

Williston's Cases on Bankruptcy.

Massachusetts Practice

Jurisdiction of the courts and venue of actions, method of bringing suit, including attachment and service of process; pleading under the Massachusetts Statute; obtaining judgment and satisfaction of execution; exceptions and appeals. Also some discussion of Massachusetts probate and divorce law.

Buswell and Walcott on Massachusetts Practice.

Moot Court

In response to an urgent demand, a Moot Court will be conducted the last half of the year by Judge Lummus. This court will take up the preparation of cases, the filing of various papers and general court procedure.

Many of the best Law Schools in the country are now offering such laboratory courses with evident success. Our endeavor will be to have this course deal with those branches of the profession with which the graduate just entering practice is largely unfamiliar, but which are essential for the proper preparation and trying of cases.

Special Courses

At the request of our alumni and members of the Bar, a special course of lectures is being arranged for the years 1914-15-16. These will consist of subjects not included in our regular program, but will deal with special subjects of interest to practitioners.

Among the subjects treated will be:

Legal Ethics.

Public Service Corporations and Carriers.

Court Procedure.

Insurance.

Probate Procedure.

Conveyancing.

Admiralty, etc. etc.

A special flyer announcing these courses will be issued early in the fall.

General Information

Quizzes

In addition to the formal lectures the students meet regularly, throughout the year for a systematic review of the material covered by the regular lectures. These "quizzes" are conducted by experienced instructors.

Students are also encouraged to form quiz clubs among themselves, since in law, as in other branches of knowledge, discussion develops mental power.

Examinations

Written examinations are regularly held during the months of February and May. Those failing to pass these examinations, also applicants for advanced standing, are required to present themselves for examination in September. The examination schedule for September, 1914, will be found on page 3.

Tuition

The rate of tuition is \$75 per year, payable \$25 on entrance, \$25 on November 15 and \$25 on January 15. This fee includes membership in the Association. Candidates for the degree are assessed \$5 as a graduation fee.

Single subjects when authorized, will be charged for at the rate of \$25 for eight, and \$15 for four months' courses, not including membership in the Association.

Text-books

Text or case books are required in most of the courses. These books may be purchased by the student, or, if convenient, the books of the Law Library may be used in the building. It is advantageous for a student to own the books in order that he may better employ his hours at home. Law books are not sold by the school, but lists are suggested by the several instructors. Cost of text-books \$15-\$20 per year.

Note books and general supplies may be obtained at the office at reasonable rates.

Notes

Students are required to take notes of all lectures in person and to be prepared to hand in their note books for examination when called for.

Law Library

The Law Library is located in the Administration Building and is large, well equipped and beautifully furnished. In it may be found case and text books on all of the subjects taught in the school as well as on related subjects; the State Reports of Massachusetts and New York, the English Reports, United States Supreme Court Reports, etc., etc. The Library is open daily from 9 A.M. to 10 P.M., and is kept thoroughly up-to-date.

Class Rooms

The school has attractive class rooms with diffused light, comfortable furniture and good ventilation.

Dormitories

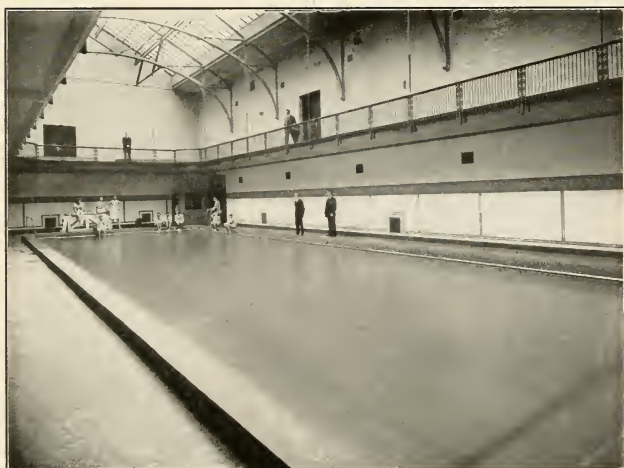
Nearly three hundred dormitories are provided where men may live with all the comforts of a great hotel. Students may enjoy any or all of these comforts at a minimum charge.

Physical and Recreative Opportunities

An enthusiastic and inexperienced man eager to gain admission to the Bar as soon as possible will exclaim when the gymnasium or social features are mentioned, "I have neither time nor inclination for these, what I wish is the study of law first, last and all time." This attitude is perfectly natural and we have heard the remark hundreds of times but the point is not well taken and often leads to disastrous results. An employed man who is giving adequate service for his wages is tired when the day's work is over and for him, to add the burden of an Evening School course, of necessity implies an overload. Most men can carry this load without difficulty, however, if they adjust their lives to the new order of things, and take on in addition to the school work, other features which offset the nervous strain, grind and monotony.



BOWLING ALLEYS



POOL

The study of law is a man's work, requiring close application, a clear head and persistent effort. In order to do the work successfully, pass the examinations and finish the four years in any sort of physical condition, one must find time for physical exercise and a reasonable amount of recreation and social enjoyment.

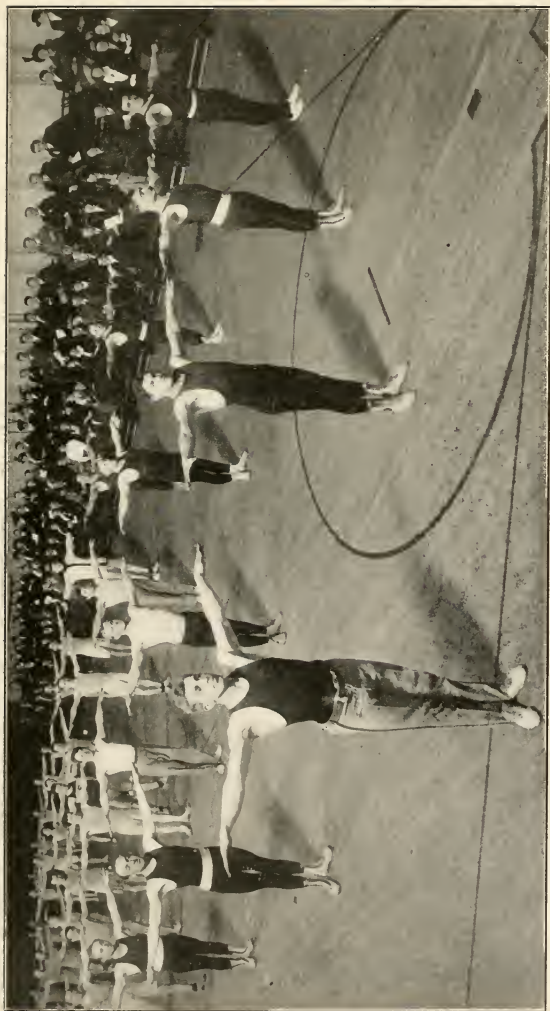
The Association Law School is the only one of its kind which can meet these conditions fully, owing to our magnificent equipment and great diversity of features. The Law School is all that science, years of experience, high ideals and careful attention to detail can make it, and it is backed by a physical department and social features of the most attractive and valuable nature. The hours are such that men may go from their business to the building, take some light exercise in the gymnasium, or a plunge in the pool or a shower bath and after a light lunch, go to their class rooms with minds receptive, active and capable of obtaining all that the courses offer. We impress all our students with the necessity of a well-balanced program, mental, physical and social, and hundreds of our men avail themselves of these advantages. The same reasons which lead the colleges to expend vast sums for the physical and social development of their students actuate us. Our gymnasium, the largest in New England, affords every opportunity for keeping in fine physical condition. The swimming pool, bowling alleys, billiard room and general library, game rooms and special exercise rooms, fencing, boxing, indoor golf, all contribute to the development of the student.

The Association restaurant supplies unusually satisfactory service at reasonable cost.

Social Life of the School

Among the prominent and valuable features of the Association Law School is the opportunity for forming the acquaintance of influential men attending the Law and other Association schools. Lectures, receptions, "get together" meetings and joint meetings with the School of Commerce and Finance occur throughout the year.

Baseball, bowling and billiard teams will compete the coming year.



GYMNASIUM

A course in Public Speaking is given each year by Clayton D. Gilbert, Head of the Dramatic Department of the New England Conservatory of Music.

The Congress, consisting of an unusually able body of men, offers opportunities for debate, discussion and extemporaneous speaking.

The Law School is the only evening school of the kind which provides the finest advantages along legal lines and at the same time, the attractive features found in the great universities. The student, therefore, not only obtains a thorough legal training, but enjoys these stimulating and refining influences by coming in contact with thousands of congenial, ambitious and high grade men who are pursuing the various branches of knowledge offered by the Association school system.

Strikingly effective are the opportunities and wholly unlike those of a small public or private school which offers only the professional side of any subject, of necessity omitting the social, physical and recreative features so valuable in preserving a proper balance and symmetrical development.

The Evening Law School offers the advantages of a high grade Law School and a University and is irresistible in its appeal to discriminating men.

New Building

In the fall of 1913 we moved into our magnificent new building on Huntington Avenue, opposite the Opera House, the land, buildings and equipment costing in the vicinity of one million five hundred thousand dollars. It is the finest group of buildings of the kind in existence consisting of the

Administration Building

in which are located the lobby, administration offices, directors' room, committee rooms, library, reading and social rooms.

Bates Hall

seating five hundred, with a large stage and complete equipment.

Educational Building

One hundred and ninety-six by fifty-six feet and six stories high, containing over thirty class rooms, laboratories, social and club rooms, and the small assembly hall.

Natatorium

containing one of the largest swimming pools in America. The pool is 75 feet long by 25 feet wide and is under a glass roof admitting floods of light and sunshine and is supplied with filtered salt water.

Gymnasium

with running track, twelve laps to the mile, special exercise rooms, hand ball and squash courts, indoor golf, six bowling alleys, shower baths, special rooms for fencing, wrestling, etc.

Industrial Building

containing machine shop, electrical laboratories and industrial plant.

Allumni Association

"The object of this Association shall be to advance the cause of legal education, to promote the interests and increase the usefulness of the Boston Y. M. C. A. Law School, to work for the welfare of the community at large, and to promote mutual acquaintances and fellowship among all members of the Association."— *Constitution, Article II.*

Early in the spring of 1912, the Alumni Association, which had been in existence for many years, took on new life, elected officers and outlined a program for the year.

Several matters of importance have been projected and put into operation, including a course of supplementary lectures, given to the undergraduates, and a course of graduate lectures on Conveyancing, given by Messrs. Charles Rackemann, Frank W. Grinnell, Alfred C. Vinton, and Francis N. Balch.

The Alumni Association is completing plans for a series of receptions to the undergraduates, the creation of a scholarship fund, and other important matters. All graduates of the Law School are cordially invited to unite with the Association and benefit by the good fellowship as well as the professional advantage of being closely identified with over four hundred practicing attorneys.

Officers

President—Hugh A. Carney, '11
Vice-Presidents—John Quinn, Jr., '06
Samuel E. Blanchard, '03
George W. Hopkins, '08
Charles H. Lutton, '02
Lyman W. Brooks, '10
Secretary—Asa S. Allen, '12
Treasurer—Frederick A. Kennett, '11

Council

Term ending 1916

Harry A. English, '11
John Speirs, '03
James E. Farrell, '08

Term ending 1915

George P. Hitchcock, '10
Alfred M. Weismann, '11
Arthur L. Woodman, '06

Term ending 1914

George W. Reed, '03
F. Chester Everett, '09
Dana S. Sylvester, '09

Term ending 1913

John J. Attridge, '05
Herman A. MacDonald, '10
Joseph T. Brennan, '04

Graduates

The following men have been granted the Degree of LL.B., in previous years:

CLASS OF 1902		Admitted to the Mass. Bar
Name	Residence	
Charles Bartlett.....	Boston	1901
*William Williams Bartlett.....	Roxbury	
Corril Ellsworth Bridges.....	Charlestown	1902
Dennis Francis Buckley.....	Georgetown	1903
Timothy John Buckley.....	Charlestown	1902
Timothy Francis Collins.....	Arlington	1902
Frederick A. Gaskins.....	Milton	1903
William John Greene.....	Cambridge	1902
Mederic Guilbault.....	Medford	1903
George Latimer.....	Boston	1903
John Bailey Loring.....	Dorchester	1901
Charles Henry Lutton.....	South Boston	1902
Edward MacHarrie.....	Somerville	1902
George Alexander McKimmon.....	Cambridge	1902
George Henry Magurn.....	East Boston	1903
William Peyton.....	Boston	1902
Joseph Louis Philip St. Coeur.....	Cambridge	1902
James Joseph Sheehan.....	Peabody	1902
James Boniface Valley.....	Cambridge	1902

CLASS OF 1903		
Robert Ross Thompson Bower.....	Boston	1903
John Henry Coakley.....	Chelsea	1903
Arthur Lester Connolly.....	Boston	1903
Edwin Horace Cooley.....	Brookline	1903
Isidor Fox.....	Revere	1903
Walter William Graves.....	Salem	1902
Reginald Hainsworth.....	Cambridge	1903
John Edward MacKinnon.....	East Boston	1903
Francis Louis Maguire.....	Arlington	1903
Frederick William Otto.....	Dorchester	1902
George Whitehouse Reed.....	Roxbury	1903
Julian Seriack.....	Dorchester	
John Speirs.....	Dorchester	1902

CLASS OF 1904		
Grosvenor Tarbell Blood.....	Newburyport	1904
Joseph Thomas Brennan.....	Cambridge	1904
Frederic Carroll.....	London, England	1904
Alfred Pugh Clark.....	Allston	1904
Charles Carthage Connor.....	New Bedford	1904
James William Dolan.....	Waltham	1904
Peter Jefferson Donaghue.....	Dorchester	1904
Michael Lawrence Fahey.....	Charlestown	1904
Carl Gerstein.....	Boston	1904
August George Gutheim.....	Washington, D. C.	1904
William Barton Jensen.....	East Boston	1904
Leo Sidney Jolles.....	Roxbury	1904
Louis Levin.....	Boston	1905
Thomas Francis Mansfield.....	East Boston	1904
George Yenetchi Parker.....	Charlestown	1902

Ralph Merrill Smith	Somerville	1904
Arthur Asher Sondheim	Roxbury	1904
Henry George Spence	Roxbury	1904
William Joseph Welch	Roxbury	1905
David White	Boston	1904
Jonathan Breck White	Watertown	1904

CLASS OF 1905

John Joseph Attridge	Boston	1906
Walter Watson Chambers	East Dedham	1906
John McLean Crawford	Charlestown	1905
John Francis Dunn	Dorchester	1907
John Henry Ells	Dorchester	1904
Horace Porter Farnham	Peabody	1905
John Gregory Fortune	Malden	
Morris Burton Frankel	Boston	1905
Isaac Gordon	Boston	1905
Samuel Hurwitz	Roxbury	1905
Abram Hyman	Boston	1906
Bernard Charles Kelley	South Boston	1907
Hugh Boniface McEachern	South Boston	1907
Leonard Wesley Parker	Boston	1906
Joseph Albert Sedgwick	Quincy	
William Payson Smith	Dorchester	1905
Daniel Sullivan, Jr.	Boston	
Ralph Lewis Theller	Cambridge	1911
Arthur William Vaughan	Somerville	1905
Alonzo Ernest Yont	Dorchester	1904

CLASS OF 1906

Henry James Angell	California	1906
Sanford Bates	Dorchester	1906
Philip Anthony Brine	Somerville	1906
Dennis Francis Carpenter	Dorchester	
William Francis Connor	Waltham	1906
John Cornelius Cronin	South Boston	1906
Patrick Joseph Dowd	Waltham	1906
Michael Joseph Doyle	Boston	1906
John Mix Finch	Everett	1907
Hamlet Samuel Greenwood	Lowell	1906
John Hamilton, Jr.	Jamaica Plain	1907
Edward Warren Harnden	Boston	1906
John Michael Hayes	Dorchester	1906
Walter Lawrence Hobbs	Boston	1906
Albert Edward Hughes	Somerville	1907
*Charles Sumner Johnson	South Boston	
Thomas Kelley	Boston	1905
Perey Francis Lannon	Roslindale	1907
George Henry Locke	Colorado	
James Alvin McKibben	Dorchester	1905
Thomas Joseph Maloney	Charlestown	1906
Peter Francis Minnock	Waltham	1906
Francis Maloney	Charlestown	1906
Stephen Francis Morgan	Charlestown	1906
Hubert Aloysius Murphy	Dorchester	1905
John Quinn, Jr.	Boston	1906
John Edward Quinn	Cambridge	1906
Ernest Orlando Raymond	Somerville	1906
Henry Burgess Roberts	Somerville	1906
John Francis Rogan	Charlestown	1905
Charles Henry Rogers	New York	1906

Samuel Rothblum	Dorchester	1906
Joseph Francis Sullivan	Charlestown	1906
John Foster Tufts	South Weymouth	1908
Arthur Lorrin Woodman	Cambridge	1906

CLASS OF 1907

George Pomeroy Anderson	Boston	1909
William Henry Barter	Dorchester	1907
*Charles Currier Beale	West Medford	1907
Roscoe Hosmer Belknap	Framingham	
Thomas Francis Brennan	Cambridge	1908
Michael John Carey	Somerville	1908
John Joseph Coady	Dorchester	1906
Daniel Francis Cunningham	Brighton	1907
Maurice Francis Cunningham	Cliftondale	1907
Michael John Dennen	Winchester	1907
Daniel John Daly	Brookline	1907
John Henry Devine	Brighton	1907
Albert Coolidge Eames	Boston	1908
Walter Frank Foss	Norwood	
Harry LeRoy French	Waltham	1907
Martin Gilbert	Roxbury	1908
Dennis William Haggerty	Boston	1907
Daniel Melbourne Herlihy	Boston	1907
William Hirsh	Dorchester	1907
William Jason Holbrook	South Weymouth	1906
*John Hughes	Boston	
Fernald Hutchins	Dedham	1907
Loring Pierce Jordan	Boston	1907
Arthur Francis Keefe	Everett	1907
Thomas James Lawler	Dorchester	
Everett Charles Lewis	Medford	1907
Frederick William McEnery	Cambridge	1907
Bernard Francis Murphy	Waltham	1909
Edward Clarence Ramsdell	Brighton	1907
Daniel David Rourke	Boston	
Koran Calvin Small	Waltham	1906
William Joseph Stone	Dorchester	1908
Frank Brown Swain	Brookton	1907
Edward Armstrong Thomas	Winthrop	1908
Henry Patrick Trainor	Waltham	1906
Abraham Hermann Weinstein	Boston	1906
James William Wickwire	Dorchester	1907
Edward Hermann Ziegler	Roxbury	1906

CLASS OF 1908

Arthur Wykeham Ashenden	Dorchester	1909
Benjamin Franklin Beale	Boston	
Edward Sherman Bennett	South Boston	1908
Francis Henry Blackwell	Boston	1907
Robert Campbell	Boston	1908
Henry Elton Chamberlin	Boston	
Francis Aloysius Cronin	Roxbury	
William John Daly	Winchester	1907
John Bernard Dayton	Somerville	1908
James Michael Driscoll	Brookline	1907
James Edward Farrell	West Newton	1908
Charles Augustus Ferguson	Malden	1909
Edward Ferguson	Cambridge	1909

Edward Richard Flavell	Boston	
Wallace Alfred Gleason	West Roxbury	1908
Michael Aloysius Henebery	Worcester	1908
George Willard Hopkins	Concord	1909
Charles Edward Houghton	Hyde Park	1909
Morris Jolles	Roxbury	1908
Max Manuel Kalman	East Boston	1910
Richard Ernest Kent	East Boston	1908
Francis Warren Kimball	Chelsea	1908
*Howard Newton Legate	Roxbury	1908
Harrison Loring, Jr.	Roxbury	1908
Edwin Tibbetts Luce	Arlington	1908
Edward Aloysius McEtrick	Brookline	1907
Charles Leroy Moore	Malden	1907
Thomas Vinson Nash	Weymouth	1910
William Nelson	Boston	1907
Edward Waterman Raymond	Boston	
Fred Louis Roberts	West Somerville	1909
Elmer Gould Royce	Northboro	1909
Charles Marcus Smith	Boston	1908
Robert William Stanley	Boston	1908
Thomas Francis Sullivan	Cambridge	1910
Nelson Barnard Todd	Lynn	1908
Frank White Tucker	Somerville	1908
George Edward Walker	Wakefield	1908
Jacob Wasserman	Boston	1907
Otto Aloysius Wehrle	East Boston	1908

CLASS OF 1909

Thomas Donald Adair	Roxbury	1909
Henry Nathaniel Andrews	Boston	1909
Williams Brooks Baker	Danvers	1910
Gilbert Bezanger	Winthrop	1909
Thomas Herbert Bilodeau	Boston	1909
Henry Victor Charbonneau	Lowell	1909
Charles Alfred Colton	Winthrop	1909
Henry Wesley Davies	Ballardvale	1908
Samuel Davis	Boston	1907
Ernest Doane Easton	Providence, R. I.	
Chester Everett	Boston	1909
David William Everett	Boston	1909
Andrew Franklin Faden	Jamaica Plain	
Thomas Jefferson Fitz	Melrose Highlands	1911
William Philip French	West Somerville	1908
Don Gleason Hill, Jr.	Dedham	1909
Perry Brooks Howard	Watertown	1910
William Francis Howard	Dorchester	1909
Lawrence Woodbury Huse	Boston	1909
Daniel Francis Lynch	Roxbury	
James Francis McDermott	Boston	1909
Frank Eliot Marble	Lynn	1910
George Nelson	Boston	1910
William Ignatius Norton	Boston	1909
Charles Joseph O'Connell	Worcester	
James Lewis Roche	Lincoln	1909
George Edward Roewer, Jr.	Boston	1909
William DeForest Ross	Wollaston	1909
William Thomas Salter	Boston	1909
Arthur Lawrence Stevenson	Newton	1908

William Booth Stevenson	Newton	1909
James Aloysius Sullivan	Boston	1909
Dana Scott Sylvester	Boston	1909
James Irwin Tucker	West Somerville	
Alexander Thurrott Walker	Forest Hills	1909
Robert Winthrop Young	Boston	1909

CLASS OF 1910

Walter Pennington Abell	Roslindale	1910
William Antcliffe Bellamy	Taunton	1910
John Bianchi	Newtonville	1910
Lyman Warren Brooks	Watertown	1911
William Herbert Burke	Worcester	1911
Ralph Norman Butterworth	Revere	1909
James William Byron	Concord	1910
John Bernard Canfield	Newton	1910
George Henry Carrick	Cambridge	1910
James Thomas Carter	Dorchester	1910
Fred William Cousins	Medford	1910
Adolph Isaac Dinner	Roxbury	1910
Shirley Howe Eldridge	Waltham	
William Caleb Frye	Winthrop	1910
Clarence Jesse Funnell	Boston	1909
Jos. Julian Orphee Gingras	Lynn	1910
Walter Howard Gleason	Watertown	1910
Ralph Clifton Glidden	Reading	1910
Thomas Max Gurin	Boston	1911
Frank Howard Hallett	Dorchester	1910
John Emmett Hanlon	Dorchester	1910
Thomas Aloysius Henry	Salem	1910
William Martin Henry	Salem	1910
Jeremiah George Herlihy	Roxbury	1910
Ralph Eugene Hiland	Everett	1910
George Preston Hitchcock	Brookline	1910
Jesse Allen Holton	Boston	1910
William Everett Horne	Quincy	1910
Guy Atwood Jackson	Dorchester	1910
George Marshall Jewell	Everett	1910
Louis Agassiz Jones	West Somerville	1910
Wilbur Aaron Jordan, Jr.	Dorchester	1910
Maurice Kronick	Boston	1910
Henry Lawrin	Boston	1910
Harold Welsey Loker	Swampscott	1910
Herman Albin MacDonald	Beverly Farms	1910
James Preston Mackin	Boston	1912
Patrick Joseph Madigan	Boston	1910
Frederick Huntley Magison	Haverhill	1910
Augustus Vincent Murphy	Dorchester Centre	1910
Alexander William Murray	Cambridge	1910
Albert Leslie Partridge	Waltham	1910
William John Pike	Chelsea	1910
Peter Ratzkoff	Roxbury	1910
Arthur Bickford Rigney	Haverhill	1910
Allan Robinson	Revere	1910
Elmer Ernest Spear	Everett	1911
James William Sweeney	Quincy	1910
James William Spicer	Melrose Highlands	
Israel Mark Ullian	Roxbury	1910
Robert Comey Van Amringe	Roxbury	1910

John Joseph Ward	Medford	1910
Maynard Addison Wood	West Somerville	1910
Frank Hubert Wright	Boston	

CLASS OF 1911

David James Aaron	Allston	1911
Philip Julius Aaronofsky	Roxbury	1911
John Alfred Anderson	Boston	1911
Charles William Babson	Dorchester	1911
Edward Holbrook Baker, Jr.	Cambridge	1911
George Grant Brayley	West Somerville	1910
Leslie Nicholas Brock	Cambridge	1911
Winslow Page Burhoe	Somerville	1910
Richard Walter Burnes	Everett	1911
Moses Caplan	Boston	1911
Hugh Augustus Carney	Roxbury	1911
Benjamin Harrison Chertok	Dorchester	1911
Edgar Weston Cobb	Medford	1911
Joshua Aaron Crawford	Boston	1911
Otis John Auguste Dionne	Walpole	1911
Harvey Alexander English	Jamaica Plain	1911
Percival Fitzgerald	Mattapan	1912
David Flower	Roxbury	1911
William Forbes	Boston	1911
William Joseph Geegan	West Newton	1910
William Francis Hill	Dedham	1911
Henry Hopkinson	Jamaica Plain	1911
Frederick Austin Kennett	Dorchester	1911
Alfred Carl Mahn	Brighton	1911
Frederick William McGowan	Medford	1911
John Henry Mattson	Lynn	1910
Andrew Potter Nichols	Fall River	
Orton Abner Peck	Boston	1911
William Henry Peterson	Cambridge	1911
Chester William Pike	Dorchester	1912
John Isaac Preston	Wakefield	1911
George Prussian	Roxbury	1911
Frederick Rabinovitz	Boston	1911
John William Roome	Dorchester	
Louis Joseph Rouleau	Jamaica Plain	1911
William Theis Smith	Somerville	1911
Edmund Michael Stanton	Roxbury	1912
Theodore Einar Stevenson	Roxbury	1910
George Burchstead Tinkham	Roslindale	
Lewis Augustine Twitchell	Dorchester	
Calvin John Upham	Dorchester	1911
Samuel Parsons Vatcher	Lynn	1911
Howell Brackett Voight	Dorchester	
James Andrew Waters	Newton Centre	1910
Alfred Mayer Weismann	Jamaica Plain	1911
Augustine Walter Welch	Watertown	1911
Alfred Little West	Somerville	1911
Charles Chester Willard	Cambridge	1912
Ralph Howard Willard	Boston	1911
James Graham Wolff	Allston	1911

CLASS OF 1912

Asa Samuel Allen	Roxbury	1912
Harry Lee Bagley	Brookline	1912
James Thomas Baldwin	East Braintree	1912

Charles Edward Baltzo	Melrose	
Henry Albert Bascom	Malden	1912
William Henry Bazley	Everett	1912
Samuel Tompkins Bennett	Malden	1912
Robert Edward Bigney	South Boston	1912
John Joseph Burke	Boston	1912
Warren Frederick Card	Lynn	1912
Cyrus Stewart Ching	Boston	1912
George Cohen	Somerville	1912
John Joseph Conway	West Roxbury	1912
Lester Wilkins Cooch	Everett	1912
Ralph Bertrand Currier	Chelsea	1912
Wilfred James Doyle	Mattapan	1912
Leo Joseph Dunn	Roslindale	1911
John William Eldrachr	Boston	1912
George Robert Ellis	Foxboro	1912
Norman Farquhar	Boston	1912
Philip Joseph Feinberg	Boston	1912
Frank Hervey Fittz	Waltham	1912
Frank Freundlich	Boston	1912
John Francis Gannon	Worcester	1912
Abraham Goldberg	Boston	1911
Harry Klauser Goed	Roxbury	
Charles Emmett Gorman	Roslindale	1912
Reuben Bertram Gryzmish	Boston	1912
Charles Edward Halliday, Jr.	Lynn	1912
John Joseph Haney	Medford	
Joseph Charles Hannon	West Newton	1912
Edward Lavant Harris	Arlington	1912
Walter Joseph Hendrick	Boston	1912
Frederick Hoitt	Boston	1912
Gustav Ferdinand Hollstein	West Roxbury	
William Frank Joseph Howard	South Boston	1912
Myer Harry Isaacson	Dorchester	
Walter Scott Jardine	Arlington	
Frank Roland Keith	Dorchester	1912
Luke Joseph Kelley	Jamaica Plain	
Samuel Thomas Lakson	East Boston	1912
Timothy Francis Leonard	Charlestown	1913
Finch Elbert Lewis	West Somerville	1912
Henry Nathaniel Longley	East Braintree	1912
John Michael Lyons	East Weymouth	1912
Thomas Bernard McCaffrey	Brookline	1912
William John MacInnis	Gloucester	1912
Abner Sterling McLaud	Lynn	1912
Arthur Hawes McLean	Dorchester	1912
John Cornelius Mahoney	Worcester	1913
William Raymond Mahoney	Cambridge	
George Albert Mansfield, Jr.	Waltham	1912
Leslie Rogers Moore	Newton	1912
Alexander Nagle	Boston	1912
Reginald Ebenezer Peters	Cambridge	1911
Benjamin Rabalsky	Boston	1911
Arthur Elmer Reimer	South Boston	1912
Ralph Henderson Robb	Boston	1912
James Percy Roberts	Dedham	1911
Francis James Rogers	East Boston	1912
Michael Seretto	Boston	
Leon Leland Silbert	Roxbury	1911
Nicholas John Skerrett	Worcester	
Walter McCabe Smith	Cambridge	1912



CLASS OF 1913

George Edwin Stebbins	Boston	1911
Richard Rogers Sullivan	Charlestown	1912
James Francis Terry	Boston	
Ralph Carl Thulin	Brighton	1912
Frederick J. Turner	California	
Nathan Ullian	Boston	1912
Joseph Vecchioni	Boston	1912
Charles Gordon Whitcomb	Allston	
Harold Willis	Brookline	1912
Edward Joseph Ziegler	East Dedham	1912

NOTE—Ten of the above graduates have never taken the Bar Examination.

CLASS OF 1913

Frank Auchter	Boston	1913
Daniel Asher	Worcester	1912
Harold Clifton Berry	Dorchester	
Walter Francis Blaser	Somerville	1913
Edgar Alden Bowers	South Framingham	
Aaron Philip Brest	East Boston	1913
Philip Augustine Carroll	Dorchester	1913
William Joseph Carroll	Cambridge	1913
Fred Martin Colby	Everett	1913
Robert Shaw Corrigan	Natick	1913
Lyman Croan	Roxbury	1913
John Dodd Daly	Salem	1913
John Patrick Dimond	South Boston	
Roy Leslie Duren	Boston	
Fred Winslow Fisher	Medford	1913
James Francis Flaherty	Brighton	1913
James C. Flannery	Boston	1913
John Daniel Fogarty	Roxbury	1913
John Charles Gilbert	West Somerville	1913
Morris Hillel Freedson	Roxbury	1913
Alfred Raphael Ghiloni	Marlboro	1913
Martin John Heiligmann, Jr.	West Roxbury	1913
*Ralph Waldo Hobbs	Quincy	1913
George Frank Howland	South Framingham	1913
Lewis Hyman	South Boston	1913
Paul Norris Jewett	Dorchester	1913
William Francis Johnston	Somerville	1912
Max Jolles	Roxbury	1912
George William Kenney	Wakefield	1913
Albert Edwin Lamb	Melrose	1913
A. Robert Martin	Forest Hills	1913
James Gervin Moran	Mansfield	
Michael Joseph Mulkern	South Boston	1913
Norman David Nechtovich	Boston	1913
John Saunders Climo Nicholls	East Boston	1913
Joseph Sanderson Pickford	Dorchester	1913
William Amber Reed, Jr.	Chelsea	1913
James Frederic Rollins	Dorchester	1913
Josiah Hirsh Rosenberg	Boston	1913
Israel Ruby	Chelsea	1913
Benjamin Joseph Shoolman	Malden	1913
William David Stein	Malden	1913
John Gerald Sullivan	Medford	1913
Daniel Gordon Thompson, Jr.	Hyde Park	1913
James Frederick Tobin	Roxbury	1913
Carlton Walen Wonson	Boston	1913
Jacob Benjamin Zuckernik	Boston	1913

*Deceased.

Other Departments

Recreation and Health

ALBERT E. GARLAND, M.D., B.P.E., Director

The physical work is under the best supervision, and the aim is to better fit men for their life work by increasing their efficiency through exercise. We offer: Well equipped gymnasiums, Recreative Hygienic and Educational Gymnastics. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts, Basket Ball, Baseball and Athletics.

Religious Work

NON-SECTARIAN

EDWIN W. PEIRCE, Secretary

In order that a young man may secure a well-balanced development and attain the true foundation for successful life work, the Association advises each member in planning his schedule to enter into one or more of the following activities:

Bible Study, Training for Christian Service, Sunday Meetings of Men, Personal Service Groups and The Twenty-Four-Hour-A-Day Club.

(Ask for Bible Institute catalog and other printed matter).

Social Work

DAVID M. CLAGHORN, Secretary

The attention of members is called to the many opportunities in the Association for social service, and the following social features:

Newly Equipped Game Rooms	The Popular Novel Club
The Association Congress	The Land and Water Club
Camera Club	Glee Club

Recreation Headquarters at Riverside

Popular Social Evenings and Entertainments

Department of Employment

FREDERICK W. ROBINSON, Secretary

The Employment Department is in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25 per cent discount from the legal rates and special effort is made to notify them when good positions are open.

Boys' Department

DON S. GATES, A.B., City Secretary

The physical, social, employment and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men as stated above. Members of the school may use the boys' Game and Social Rooms and take part in special activities, such as Entertainments, Minstrel Shows, Debates, Bible Classes, Clubs, etc.

COURSES IN DAY SCHOOLS

Alternating Current	Geometry, Analytical
Alternating Current Laboratory	Geometry, Descriptive
Alternating Current Machinery	German I
Algebra I	German II
Algebra II	German III
Applied Mechanics I	German IV
Applied Mechanics II	Greek
Applied Mechanics III	High Temperature Measurements
Applied Mechanics, Laboratory	Highway Engineering
Arithmetic, Commercial	Heat Engineering Thermodynamics
Arithmetic, General	and Boilers
Automobile Garage Course	History, American
Automobile Machine Shop Course	History, Ancient
Automobile, Operators' Laboratory	Hydraulics, Theoretical
Course	Hydraulic Motors
Automobile, Operator's Lecture	Hydraulic and Sanitary Engineering
Course	Illumination and Photometry
Automobile, Operators' Road	Industrial Chemistry
Course	Industrial Design
Bookkeeping, Elementary	Intercommunicating Telephones
Bookkeeping, Advanced	Latin I
Calculus	Latin II
Central Stations	Latin III
Chemistry I	Latin IV
Chemistry II	Law, Commercial
Chemistry I, Engineering	Lettering
Chemistry II, Engineering	Lithology
Design, Machine	Materials
Design, Power Plant	Mathematics I, Engineering
Design, Structural	Mathematics II, Engineering
Drawing, Architectural; and Show	Machine Design
Card Writing	Metal Work
Drawing, Boiler	Metallurgy of Iron
Drawing, Frechand	Penmanship
Drawing, Machine	Physics I
Drawing, Mechanical	Physics II
Dynamics of Machines	Physics, Laboratory
Elementary Electrical Laboratory	Qualitative Analysis
Electrical Engineering Laboratory	Quantitative Analysis
Elementary Science	Railroad Engineering
Electric Railways	Shorthand I
Electricity I	Shorthand II
Electricity II	Spanish
Electricity III	Spelling
Electric Light and Transmission of	Stereotomy
Power	Studies in Electrical Construction
English I	Surveying I
English II	Surveying II
English III	Trigonometry
English IV	Typewriting
English, Business	Theory of Structures
Forging, Chipping and Filing	Technical Electrical Measurements
Foundations	Valve Gears
Foundry Practice	Wiring and National Code
French I	Wood Working and Pattern Work
French II	Theory of Structures, Bridges and
French III	Similar Structures
French IV	Advanced Structures
Geometry, Plane	Railroad Design
Geometry, Solid	Mechanism

COURSES IN EVENING SCHOOLS

Agency	French III
Algebra, Elementary	French IV
Algebra, Advanced	Geometry, Analytical
Arithmetic, Commercial	Geometry, Plane
Arithmetic, General	Geometry, Solid
Auditing, Elements of	German I
Auditing, Advanced	German II
Automobile Courses:	German III
Chauffeurs' and Operators' Lecture	German IV
Chauffeurs' and Operators' Laboratory	Greek
Chauffeurs' and Operators' Road	History, American
Garage Course	History, Ancient
Machine Shop Repair	Illustrating and Cartooning
Banking	Industrial Design
Bankruptcy	Investments
Bills and Notes	Italian
Bookkeeping, Elementary	Latin I
Bookkeeping, Advanced	Latin II
Bridge Design	Latin III
Buying	Latin IV
Calculus	Law, Commercial
Chemistry	Law, Special (in Law School)
Elementary	Lettering
Qualitative Analysis	Machine Drawing
Quantitative Analysis	Massachusetts Practice
Organic	Mathematics, Engineering
Civil Service	Mathematics, Practical
Commercial Credits	Mechanism
Commercial Resources	Office Organization and Administration
Constitutional Law	Partnership
Contracts	Penmanship
Conveyancing	Physical Geography
Corporations	Physics
Corporation Finance	Physiology
Corporate Reorganizations	Plan Reading and Estimating
Cost Accounting, Elements of	Pleading
Cost Accounting, Advanced	Property I
Criminal Law	Property II
Crises, Commercial	Property III
Drawing, Freehand	Public Accounting
Drawing, Mechanical	Publicity
Economics, Applied	Railroad Engineering
Economics, Principles of	Reinforced Concrete Construction
Electricity I	Sales
Electricity II	Selling
Electricity III	Shorthand I
Elementary Mechanics	Shorthand II
Elementary Science	Spanish
English I	Spelling
English II	Steam Engineering
English III	Steel Building Construction
English IV	Structural Drafting and Detailing
English, Business	Surveying, Elementary
Equity I	Surveying, Advanced
Equity II	System Building, Elements of
Evidence	System Building, Advanced
Factory Organization and Administration	Teachers' Industrial Course
Firing	Torts
French I	Trigonometry
French II	Typewriting



School of Commerce & Finance



AN INCORPORATED INSTITUTION OF COLLEGE GRADE
WITH PRIVILEGE OF GRANTING DEGREES

CATALOGUE
1914-1915

Y. M. C. A. BUILDING, 316 HUNTINGTON AVENUE
BOSTON, MASS.

DOWNTOWN OFFICE OPEN FROM JULY 15 TO OCTOBER 1
EXCHANGE BUILDING, 53 STATE STREET

ANNOUNCEMENT
OF THE
School of
Commerce & Finance
1914-1915



THIS SCHOOL IS AFFILIATED WITH
The Department of Education
OF THE
BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

Calendar

1914

Sept. 9 and 11 (7 P.M.)	Entrance Examinations for Advanced Standing, (316 Huntington Ave.)
Sept. 14 to 19 inclusive (11 A.M. to 9.30 P.M.)	Week of Enrollment (316 Huntington Ave., or Exchange Bldg., 53 State St., Boston)
Sept. 14 to 19 (7 P.M.)	Examinations for Removal of Conditions, (316 Huntington Ave.)
Sept. 21 (7 P.M.)	Opening of First Semester and Organization of Classes
Oct. 12	Columbus Day
Nov. 26	Thanksgiving Day
Dec. 23 (9.30 P.M.)	Christmas Vacation Begins

1915

Jan. 6 (7 P.M.)	Christmas Vacation Ends
Feb. 5	Close of First Semester
Feb. 8	Beginning of Second Semester
Feb. 22	Washington's Birthday
April 19	Patriots' Day
May 30	Memorial Day
June 4-11	Final Examinations

OFFICE HOURS

A downtown office will be located in the Exchange Building, 53 State Street, during the period from July 15th to October 1st. This office will be open each week day from 10.00 A.M. to 5.30 P.M., excepting Saturdays on which day it will be closed at 2.00 P.M., and on Tuesday and Thursday evenings from 6.30 to 9.00.

The Educational office at 316 Huntington Avenue will be open each week day from 9.00 A.M. to 9.00 P.M.

OFFICE HOURS OF THE DEAN

Downtown office—Mondays, Wednesdays and Fridays from 10.00 A.M. to 5.30 P.M., and on Tuesday evenings from 6.30 to 9.00 P.M.

316 Huntington Avenue—Tuesdays and Thursdays from 10.00 A.M. to 5.50 P.M. and on Thursday evenings from 6.30 to 9.00 P.M.

Telephone Connections—316 Huntington Avenue, Back Bay 4400. (Ask for the School of Commerce and Finance.) Exchange Building, 53 State Street, Fort Hill 5385.

DIRECTOR OF EDUCATION
of the
Boston Young Men's Christian Association

FRANK PALMER SPEARE, M.H.

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of the
School of Commerce and Finance

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GALEN D. LIGHT, A.B., *Secretary and Bursar*

FRANCIS B. SEARS, *Treasurer*

HARRY C. BENTLEY, C.P.A., *Dean*

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BERTHA M. STRATTON, A.B., B.S., *Recorder*

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GEORGE S. SMITH, President of the New England Power Company and Ex-President of the Boston Chamber of Commerce

FRANK PALMER SPEARE, Director of Education of the Boston Y. M. C. A.

F. R. CARNEGIE STEELE, of the firm of Patterson, Teele & Dennis, Certified Public Accountants

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Head of the Department

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GEORGE P. BACON, A.M.

JAMES WILLING, C.A.

PHILIP F. CLAPP

RAYMOND G. LAIRD, B.C.S., C.P.A.

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ABIJAH PEARSON, B.C.S.

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(Of the Accounting Staff of Clinton H. Scovell & Company)

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(Office Manager for Bright, Sears & Company)

CHARLES F. GETTEMY, A.M.
(Director of the Bureau of Statistics of the Commonwealth of Massachusetts)

HERBERT A. GIDNEY
(Auditor for Charles H. Tenney & Company)

FERDINAND M. HOLMES
(Trust Officer of the Old Colony Trust Company)

SCHOOL OF COMMERCE AND FINANCE

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(Treasurer Holtzer-Cabot Electric Company)

DAVID C. LASH

(Cost Accountant for the General Electric Company)

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J. EDWARD MASTERS, C.P.A.

(New England Manager of Price, Waterhouse & Company)

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(Chief Accountant for W. Barclay Parsons & Klapp, New York)

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THEODORE N. WADDELL

(Chief Statistician, Municipal Division, Bureau of Statistics)

C. OLIVER WELLINGTON, A.B., C.P.A.

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GUY NEWHALL, A. B., LL. B.

Lecturer

HENRY C. SAWYER, B.S., LL.B.

(Of the firm of Sawyer, Hardy & Stone)

DEPARTMENT OF ECONOMICS

Instructors

HENRY C. METCALF, PH.D.

Head of the Department

RALPH B. WILSON, A.M.

FACULTY

DEPARTMENT OF ECONOMICS (*Continued*)

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(Assistant Professor of Political Economy at Yale University)

LEAVITT C. PARSONS, S.B.

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Director of the Course

MYRON C. LECKNER, A.B.

(Manager of Division of Commercial Research, Curtis Publishing Company)

JOHN J. MORGAN

(Of the firm of Morgan & Morgan)

CHARLES C. PARLIN, A.B.

(Advertising Department, Curtis Publishing Company)

WALTER G. RESOR, A.B.

(Of the firm of J. Walter Thompson Company)

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Director of the Course

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(Manager of Credit Department, The National Shawmut Bank)

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(Of the firm of F. S. Moseley & Company)

H. H. HUMPHREY

(Manager of Credit Department, Brown Durrell Company)

GARDINER E. THORPE

(Superintendent of The Bradstreet Company)

GEORGE H. WILLCOCKSON

(Treasurer of Loose-Wiles Biscuit Company)

SCHOOL OF COMMERCE AND FINANCE

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Director of the Course

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HARRY N. HAVEN

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Director of the Course

SALES MANAGERSHIP

C. K. WOODBRIDGE, A.B.

(Sales Manager Loose-Wiles Biscuit Company)
Director of the Course

E. M. FISHER, A.B.

(Supervisor of Selling, William Filene's Sons Company)

[FRANKLIN W. GANSE, LL.B.

(Manager of Home Office Agency, The Columbian National Life Insurance Co.)

C. J. JOHNSON, A.B.

(Treasurer of Daniel Green Felt Shoe Company)

REAL ESTATE

S. LELAND MONTAGUE

Director of the Course

General Statement

The School of Commerce and Finance is a technical institution of college grade. It was incorporated in January, 1911; in March of the same year the Massachusetts Legislature granted it power to confer upon its graduates the degrees of B. C. S. (Bachelor of Commercial Science) and M. C. S. (Master of Commercial Science).

The School was formally opened September 25, 1911, offering its regular courses through evening sessions only. The enrollment of new students has been as follows:

1911-1912	153	Average age 27 years
1912-1913	173	Average age 26 years
1913-1914	548	Average age 28 years

The ages of the students range from nineteen to fifty-six years. These men include in their number office managers, technical engineers, lawyers, accountants, commercial teachers, credit-men, salesmen, buyers, bank clerks, private secretaries, bookkeepers and assistant bookkeepers. By reason of their maturity and practical experience they are able to acquire and assimilate much more technical knowledge in a given time than could men of less years or business experience. The quality of a man's daily work is benefited almost from the time he enters the School of Commerce and Finance because of the practical instruction he receives, while the grade of his work at the School is much improved by his constant contact with actual conditions in business during the day. A large number of students receive an increase in income during their first year at the School and further increases follow as a natural sequence to increased ability.

Two regular courses are offered—Business Administration and Professional Accountancy. These courses are specially planned to prepare men for public accounting, to pass C. P. A. examinations, and to become office managers, auditors, cost accountants, buyers, salesmen, credit-men, publicists, etc. In choosing a life career if a man's aspirations do not reach beyond the work of a bookkeeper or office clerk then the prepara-

SCHOOL OF COMMERCE AND FINANCE

tion offered by business schools and the commercial departments of high schools may suffice. If, however, he aspires to become a specialist in business, the training for which should be as complete as that required for law, engineering, or medicine, he should secure his preparation from some institution of college grade where the quality and scope of instruction is equivalent to that provided by schools of law, engineering or medicine.

It is believed that the School of Commerce and Finance offers the most thorough and practical courses of instruction which it is possible to secure in preparation for the accountancy profession and for specialized business administrative positions. It was established and is conducted by men who have had a broad experience in the application of modern scientific business methods.

The instruction is given by specialists—men familiar through their daily work with the actual conditions in their several fields. It is impossible to acquire proper technical training in preparation for a successful business career except from men who have had broad practical experience, and who are able to impart their knowledge. Especially is this true of accountancy subjects, buying, selling, commercial credits, publicity, factory organization and administration and office organization and administration. There is probably no class of students to whom the theorist's teachings in technical subjects are of so little value as to experienced business men. They do not look with favor upon instruction in practical subjects being given by men of academic training and point of view, who presume to tell how to be successful, and yet who themselves have never taken any active part in the world of business or finance.

The School of Commerce and Finance is particularly fortunate in several respects. It is not a money making institution, but part of a great educational system liberally endowed through its buildings and equipment. The members of the faculty are men of liberal education and broad experience, not alone in the teaching of their subjects but in the commercial application of them. Its students are mature men of exceptional ambition and intelligence with whom it is an inspiration to associate. Men of discrimination who are serious in their

GENERAL STATEMENT

determination to secure the very best training that is available will appreciate the desirability of identifying themselves with a School which has as its avowed purpose the creation of vocational efficiency, and which adapts its methods and courses of study to the immediate needs of live American business men,—enabling them to develop their capacities to the highest degree.

Some idea of the relative size of the School of Commerce and Finance can be gained from the following statistics:

**Comparative statement of students enrolled by various schools
offering courses similar to those of the School of
Commerce and Finance of Boston.**

Name of School	Date Established	Evening Students Enrolled during 1913-14	Average Age	Day Students Enrolled during 1913-14	Average Age	Total Enrollment 1913-14
New York University—School of Commerce, Accounts and Finance*	1900	2100	24	130	23	2230
University of Pennsylvania—Wharton School	1881	701	24	783	19	1430
School of Commerce and Finance of Boston	1911	668	28	—	—	668
Northwestern University*	1908	640	26	10	—	650
University of Illinois*	1910	—	—	315	21	315
University of California*	1908	—	—	298	—	298
Boston University—College of Business Administration*	1913	274	25	—	—	274
Harvard School of Business Administration†	1908	—	—	117	24	117
University of Cincinnati—College of Commerce*	1906	—	—	—	—	104
University of Denver—School of Commerce, Accounts and Finance	1908	76	25	—	—	76
Dartmouth College—Amos Tuck School of Administration and Finance†	1900	—	—	64	22	64
*Co-educational						
†Graduate School						

The foregoing statistics indicate that the School of Commerce and Finance is the third largest institution of its kind in the United States. Its enrollment of 668 students during the year 1913-14 is the more remarkable when it is considered that the school was incorporated only three years ago. No similar institution in the country has enjoyed such a remarkable growth during its first years of existence, and this growth can be

SCHOOL OF COMMERCE AND FINANCE

very largely attributed to one factor,—namely, efficiency. It will also be noted by reference to these statistics that the average age of those enrolled in the school during the year 1913-14 is 28, as compared with 24 in the older institutions.

Scientific business is a new profession and accountancy is one of its most important features. The great difficulty confronting all schools attempting to teach accounting has been the scarcity of technically trained and experienced teachers. There has been much criticism of the teaching of accounting in institutions of college grade, and with more or less reason. Many higher institutions are offering instruction in accounting subjects with a view to preparing men for the C. P. A. examinations and for public practice, but in too many cases the instruction in these very technical subjects is being given by men who have had very little or no professional experience, while in other cases practitioners with no teaching experience are attempting to impart their knowledge by means of lectures alone. It is impossible for one who has not had a broad professional experience to adequately prepare students for the accountancy profession, and it is equally impossible for a practitioner, regardless of his ability, to accomplish this same result by means of lectures. Few practitioners have the time to devote to a carefully prepared course, and still fewer possess teaching ability.

It has been claimed that accounting subjects receive far too little attention in many institutions that aim to prepare their students for public or private practice in accountancy. A special effort has been made by the School of Commerce and Finance to meet this criticism, and to offer courses of such length and character as to really accomplish the desired end.

A great amount of preparation is required on the part of the instructor in order to provide efficient instruction in accountancy subjects and to furnish suitable material for intensified practice work in bookkeeping technique, auditing, system building and cost accounting. All practice work assigned to and later submitted by students should be carefully examined, graded, and promptly returned. It requires a great deal of time to cover the amount of practice work essential to developing an advanced knowledge of accounting subjects, and no institution can expect

GENERAL STATEMENT

to obtain satisfactory results in the time ordinarily devoted to them.

A consideration of the number of hours spent in accounting subjects in the School of Commerce and Finance will show that the criticism made concerning such schools in general has been met. Statistics indicate that this school requires practically 50% more of class room hours devoted to accountancy subjects than any other institution. It also requires its students to perform far more practice work than is customary, the minimum number of hours of outside work being over 1200. In other words, in order for a man to graduate from the Professional Accountancy course in the School of Commerce and Finance, it becomes necessary for him to devote about 1800 hours to accounting subjects, two-thirds of which is given up to carefully graded practice work. The same thoroughness which characterizes the work in accounting is emphasized in the subjects dealing with Business Law, Buying, Salesmanship, Sales Management, Commercial Credits, Publicity, Investments, Real Estate, etc.

During the past few years correspondence courses in Accounting, Business Law, Economics, etc., have been exploited by various corporations and individuals purely as money making propositions. That they have been exceptionally successful from a financial standpoint is evidenced by a recent statement issued by a corporation which conducts a well known correspondence course in New York with offices and salesmen in the chief cities of the United States. It appears that this corporation realized net earnings of over \$81,000 during 1913 and they anticipated that the net earnings for 1914 will be about \$130,000. Last year a 200% stock dividend was paid on the common stock.

These correspondence courses are not to be compared with resident instruction. It is advisable to guard against paying out one's hard earned money for a course which is of doubtful value. Too much stress cannot be placed upon the importance of personal contact with the instructors, and the inspiration and helpfulness which comes from associating with a class of experienced business men.

Courses Offered

Two courses leading to the degree of B. C. S. are offered by the School of Commerce and Finance:

Business Administration
Professional Accountancy

A complete description of each of these courses is given elsewhere in this catalogue.

Period of Attendance

The school year consists of 36 weeks, and commences September 21, 1914.

It requires four years of attendance to complete either of the courses offered by the School of Commerce and Finance unless one enters with advanced standing, in which case they may be completed in three years. During the first two years of the four-year course attendance is required on two evenings of each week,—Monday and Wednesday, from 7 to 9.30. During the remaining two years attendance is required on three evenings of each week,—Monday, Wednesday and Friday in the Professional Accountancy course, and Tuesday, Wednesday and Thursday or Friday in the Business Administration course, from 7 to 9.30. No entrance examination in bookkeeping is required from those who enroll for a four year course because the work in accounting given in the first year does not presuppose a knowledge of double entry bookkeeping.

Advanced Standing

A student may complete either of these courses in three years provided he enters with advanced standing. This calls for attendance three evenings each week from 7 to 9.30, Tuesday, Wednesday and Friday during the first year, and for the remaining second and third years, the same schedule will be followed as is outlined above in the four year courses. A student who wishes to enter with advanced standing must pass an examination in elementary accounting, a specimen of which is submitted on pages 17—20.

COURSES OFFERED

General Remarks Bearing Upon Courses

It is impossible to secure a working knowledge of accountancy without a great amount of practice work. Lectures alone will not develop a finished technician. An elastic knowledge of a technical subject and the ability to apply that knowledge comes only through lectures supplemented by intensified practice. If a student is to attend classes four or five nights a week he is left practically no time in which to do practice work or to think over the lectures. The result is that when he graduates he has not acquired a finished knowledge; he is unable to execute because he is deficient in technique; and because of this deficiency he does not realize his limitations until he attempts to put his theoretical training into practice.

The courses of this School are exceptionally heavy. A large amount of practice work is required to be done in connection with all the technical subjects. This practice work must be performed outside of class and it takes considerable time to do it. The completion of a course at this School means a sacrifice of social pleasures and the giving up of much of one's spare time to study. The outside work in either of the courses requires from ten to sixteen hours of work each week for those who enter with advanced standing with the idea of completing a course in three years. For those who enroll in either of the four year courses the average time required for outside work will vary from eight to twelve hours a week during the first two years, and ten to sixteen hours a week during the last two years.

The purpose of the courses is to provide adequate training in preparation for the work of a professional accountant, controller, cost accountant, office manager, traveling auditor, salesman, buyer, credit-man, publicity manager, sales manager, etc. It is vitally important for a man who desires to become a business specialist to secure the most authentic, practical and complete instruction that is available.

Special attention is called to the announcement of lecture courses in Buying, Publicity, Salesmanship, Sales Managership, Commercial Credits, Investments, Corporation Finance, and Real Estate, as shown on the last pages of this catalogue.

Entrance Requirements

Any man eighteen years of age or over, of good character, who is a graduate of an approved high school or its equivalent, may register for either of the evening courses offered in the School of Commerce and Finance as a candidate for the degree.

A student may elect any subject or group of subjects provided his programme does not conflict with the regular programmes of the school but by so doing he is classed as a special student.

A non-high school graduate may enroll as a conditional candidate for the degree or as a special student, and take either of the regular courses or elect any subjects offered in the regular programmes of the School. (See proviso on page 27 covering the minimum graduation requirements.)

The chief function of this School is to be of service to those who merit service. To that end it waives the traditional entrance requirements and opens its doors to any man who is willing to forego social pleasures in order that he may devote all his spare time to study.

The standards set by the School are unusually high in all subjects. It prefers to earn the reputation of being an institution where the entrance requirements are exceptionally liberal but where the standard for graduation is exceptionally high. Any man who can complete a course in the School of Commerce and Finance and meet the minimum graduation requirements for non-high school graduates is thoroughly entitled to the degree. If a man enters and is unable to meet the standards of the course he is advised to repeat the work or transfer to another course better adapted to his ability.

It is highly essential to make a distinction between those who do not understand bookkeeping and those who have a sufficient knowledge of the subject to take up the study of higher accountancy, for in no other way can justice be done to both groups. The former must be given a thorough training in the elementary principles before attempting to take up more advanced work, while the latter is prepared to start at a much

ENTRANCE REQUIREMENTS

more advanced stage in accountancy subjects. The entrance examination affords a proper basis for determining which students are eligible for advanced standing. Therefore, if a man considers that he is capable of completing a regular course in three years he is asked to demonstrate his preparedness by passing an examination which will admit him to advanced standing.

Examination for Advanced Standing

The examination for advanced standing presupposes a thorough knowledge of double entry bookkeeping as applied to mercantile businesses, a familiarity with the form and arrangement of balance sheets and profit and loss statements, and the ability to open and close a set of books properly. Graduates of business schools and commercial departments of high schools where a thorough training in modern bookkeeping methods is provided, should be able to pass the examination for advanced standing, especially if they have had practical experience in bookkeeping. Teachers of bookkeeping and experienced bookkeepers should also be able to pass this examination without difficulty. Those who desire to complete either of the courses in three years are advised to consult with the Dean and to devote some time in preparing for the examination for advanced standing. The examination may be taken at the new Association Building, 316 Huntington Avenue, at 7 o'clock, p. m., on September 9 or 11.

SPECIMEN QUESTIONS TAKEN FROM EXAMINATIONS FOR ADVANCED STANDING

1. How should one proceed to detect errors in a trial balance?

2. Make journal entries for the following imaginary transactions:

(a) You issue your note to William Brown for \$510 to cover a bill of \$500 and interest on the \$500 note for four months at 6%.

(b) The Acme Mercantile Company has made an allowance to you of \$27 on account of a bill of goods which you purchased a short time ago and which you have not yet paid.

SCHOOL OF COMMERCE AND FINANCE

(c) You have discarded some office furniture which is carried on your books as an asset at cost. Show entry you would make if a Reserve for Depreciation of Office Furniture account were kept. Show entry you would make if no provision had been made for depreciation.

3. Following are the titles of several ledger accounts common to mercantile and manufacturing bookkeeping. Indicate, by placing an A, L, R or E on the left margin, which ones show by their balances an asset, liability, revenue or expense.

Corporation Taxes	Machinery and Equipment
Office Stationery	Rent Received in Advance
Stable Supplies on Hand	Securities Owned
Taxes Paid in Advance	Good Will
Insurance Premiums Prepaid	Commissions Earned
Notes Payable	Salaries and Wages Accrued
Cash	Office Help
Accrued Interest on Mortgages Payable	

4. (a) How often is it possible to compile a profit and loss statement and a balance sheet in a mercantile or manufacturing business, as a general proposition?

(b) Outline the rulings of a cash book with which you are familiar, explain how cash transactions are recorded therein, and how postings are made to the general ledger.

(c) How often should ledger accounts be ruled off?

(d) What are the functions of a Purchase Book, a Sales Book, and a Journal?

(e) How do you arrange accounts in a general ledger—that is, in what order do you arrange them?

5. Make up an expense account containing several items, as it would appear in the general ledger. Illustrate how it should be closed at the end of a fiscal year.

6. What are the advantages of controlling accounts? Give an example and tell what is debited and credited to such an account, and explain its relations to its subsidiary records.

7. Of what use are special columns in books of original entry? Explain their advantages.

ENTRANCE REQUIREMENTS

8. Give a brief rule for determining which accounts are to be debited and credited in recording business transactions.

9. Describe the rulings of an ordinary ledger and insert several debits and credits providing fictitious dates, folios and amounts. Illustrate how you would put in footings at the close of a month preparatory to taking a trial balance, and where you would show the balance of the account in pencil figures.

10. What is represented by the excess of assets over liabilities?

11. What is represented by the excess of liabilities over assets?

12. Describe fully how one should proceed to reconcile a bank balance.

13. How often should charge sales and cash received from customers be posted to the customers' accounts?

14. What are the functions of the Journal in a set of books where a Cash Book, Purchase Book and Sales Book, are kept?

15. What is the difference between a trial balance and a balance sheet?

16. Make out a bank check.

17. Make out a note.

18. If you receive a note from John Smith (one of your customers) to apply on account, how and where would you record this transaction? Illustrate by showing the entry you would make for it.

19. What is the difference between single entry and double entry bookkeeping?

20. Define the following terms: Fixed Assets, Current Assets, Fixed Liabilities, Current Liabilities, Gross Profit, Net Profit from Operations, Net Profit, Surplus, Net Worth.

21. To what accounts would you charge the following items? Freight Inward, Sale Returns, Cash Discount on Sales, Rent, Insurance Premiums.

SCHOOL OF COMMERCE AND FINANCE

22. TRIAL BALANCE, JUNE 30, 1911

Real Estate (cost)	\$90,416.00	
Store Fixtures (cost)	22,416.00	
Office Equipment (book value)	3,620.00	
Stable Equipment (cost)	5,780.00	
Cash	13,218.00	
Accounts Receivable (all collectible)	17,800.00	
Bills Receivable	1,680.00	
Merchandise on Hand, Dec. 31, 1910 (cost)	426,440.00	
Stable Supplies on Hand	326.00	
Insurance Premiums Prepaid	2,268.00	
Interest Prepaid on Notes Payable	642.00	
Mortgages Payable		\$50,000.00
Accounts Payable		46,450.00
Notes Payable		70,000.00
Taxes Accrued		2,100.00
Interest Accrued on Mortgages Payable		500.00
Reserve for Depreciation of Building		27,314.00
Reserve for Depreciation of Store Fixtures		8,420.00
Reserve for Depreciation of Stable Equipment		1,561.00
J. F. Marsh's Capital		350,000.00
J. F. Marsh's Drawing	31,451.00	
Purchases (Dr. \$1,280,420.00 Cr. \$1,318.00)	1,279,102.00	
Sales (Dr. \$3,714.00 Cr. \$1,436,218.00)		1,432,504.00
Store Expenses	62,426.00	
General Administrative Expenses	26,814.00	
Stable Expenses	7,618.00	
Interest (Dr. \$4,484.00 Cr. \$226.00)	4,258.00	
Discounts on Purchases		7,426.00
	<hr/>	<hr/>
	\$1,996,275.00	\$1,996,275.00
Inventory, June 30, 1911 (cost)	\$487,642.00	

The above Trial Balance was compiled after all adjusting entries had been made, preparatory to closing the ledger.

REQUIRED:

- (a) Closing entries
- (b) Balance Sheet (statement form—current assets first)
- (c) Profit and Loss Statement (show percentages)

Term Work and Examinations

Term Work

This refers to work assigned to be done outside of class hours; that is, it means home work.

All term work assigned is required to be prepared and submitted by students. It is then examined, graded and returned to them, with corrections clearly noted for their benefit. The marks used in grading term work are the same as those used in grading examinations:—

A	(95 to 100)
A-	(90 to 94)
B	(85 to 89)
B-	(80 to 84)
C	(75 to 79)
C-	(70 to 74)
D	(1 to 69)

The minimum passing mark is 70, and all term work with a grade of "D" is required to be repeated until a passing mark is attained. The maximum grade on term work repeated is "B."

By far the greatest amount of term work is assigned in connection with accountancy subjects. Sets of books have to be written up; a great variety of exercises in the preparation of financial statements, adjusting entries and closing entries are assigned; accounting systems are designed and students are required to rule and letter the forms; sets of instructions for the conduct of accounting systems are required to be prepared; sets of books are audited and the audit reports and working papers are required to be submitted; a great variety of C. P. A. questions in Theory of Accounts, Practical Accounting, and Auditing are required to be answered; and special problems are given dealing with accounts and accounting methods for public utilities, municipalities, banks, executors and trustees, manufacturing enterprises, insurance companies, etc.

Business law, economics, buying, publicity, salesmanship, commercial credits, sales managership, investments, and real

SCHOOL OF COMMERCE AND FINANCE

estate, are taught by means of lectures supplemented by reading assigned for home study.

NO STUDENT WHO IS A CANDIDATE FOR THE DEGREE WILL BE ADMITTED TO EITHER THE JUNIOR OR SENIOR CLASS UNLESS ALL TERM WORK PREVIOUSLY ASSIGNED TO HIM HAS BEEN COMPLETED WITH PASSING GRADES.

The approximate average time required each week of the school year for accomplishing the term work assigned is shown hereunder according to subjects:

Professional Accountancy

	1st Year	2nd Year	3rd Year	4th Year
Accounting	7	7	9	9
Law	2		2	2
Economics		3	3	3
	—	—	—	—
Totals	9	10	14	14

Business Administration

(The first two years are the same as above.)

	3rd Year		4th Year	
	1st Term	2nd Term	1st Term	2nd Term
Accounting	9			
Law	2	2	2	2
Economics	3	3	3	3
Buying		2		
Salesmanship		3		
Publicity			3	
Commercial Credits ...			3	
Sales Managership				3
Electives		3	3	6
	—	—	—	—
Totals	14	13	14	14

Examinations

Midyear examinations are given during the last two weeks of the first term, and final examinations are given during the last two weeks of the school year.

Examination papers are examined, graded and returned to students as promptly as possible.

At the first meeting of classes following the return of examination papers in economics, law and accounting subjects, the instructors give the correct answers to the questions and discuss any matters relating to them which the students desire to suggest.

TERM WORK AND EXAMINATIONS

If a student is absent from, or fails to pass, an examination he is then conditioned in the subject covered by the examination. Conditions may be carried forward but they must be passed off before the completion of the senior year's work, otherwise a student is not permitted to graduate. If one fails to pass a make-up examination he is given another opportunity to pass off his condition.

Make-up examinations will be given at 7 o'clock P.M. on September 14, 15, 16, 17, 18 and 19, 1914; November 12 and 19, 1914; and on April 6, 8, 12, 13 and 15, 1915.

Examinations are graded the same as term work. The marks used in grading are shown on page 21. The minimum passing mark is 70, and examinations marked "D" incur conditions which are required to be ultimately passed off before one is permitted to graduate.

Non-high school graduates who contemplate receiving the degree should bear in mind that at least 75 per cent of their term work and 50 per cent of their examinations must have grades of "B" or higher.

Reports of Standing

A report of the standing of every student is rendered at the close of each year, showing the term mark and examination mark in each subject taken during the year. In case a student's work is unsatisfactory he may be required to repeat the subjects in which his work has been unsatisfactory, drop one or more subjects, or withdraw from the course.

THE HONOR SYSTEM

Since the organization of the School of Commerce and Finance all examinations have been conducted under the so-called Honor System. The mere act of enrolling as a student of the School of Commerce and Finance implies a willingness to abide by and contribute to the moral support of this system, since it is a condition precedent to matriculation. In brief, it means that examinations are not proctored and that the members of each class jointly and severally assume the responsibility of conducting examinations honorably and orderly.

SCHOOL OF COMMERCE AND FINANCE

Each student who enrolls in the School of Commerce and Finance as a candidate for the degree or as a conditional candidate for the degree is required to sign an honor-system pledge which reads as follows:

"In consideration of my being enrolled in the School of Commerce and Finance of the Boston Young Men's Christian Association as candidate for the degree of Bachelor of Commercial Science, I hereby agree to abide by the Honor System, by neither giving nor receiving aid in examinations, and by refraining from submitting any term work which is not the result of my own efforts; and I also promise to do all in my power to promote and uphold said Honor System."

It should be remembered that there is no objection to students working together on term work when each contributes his share of efforts and ideas. In fact, genuine benefits should accrue from an interchange of ideas where each man does his part. If, however, a student copies the term work of another he is not only cheating himself but performing a breach of the honor system; he is also attempting to secure the degree by means of deceitful and dishonest methods.

If there is any class of educational institutions where the Honor System should be practiced it is in those institutions where men are trained for business careers. It is not alone sufficient that a man conduct himself honestly and honorably; there is a further important responsibility which he should willingly assume,—that of trying to prevent dishonesty amongst his fellowmen and failing in this to expose them in the proper manner. Hence, it is the duty of a student who believes that another student has performed a breach of the honor system to report the matter to the President of his class who in turn should present the case before his Executive Committee. It is the duty of the Executive Committee to confer with the Dean as to the proper disposition of the case.

CREDIT FOR COURSES COMPLETED IN OTHER INSTITUTIONS OF COLLEGE GRADE

Students who have completed courses in law or economics in other institutions of college grade will be given credit upon

TERM WORK AND EXAMINATIONS

presenting evidence that such courses were satisfactorily completed and that they are equivalent to the corresponding courses offered by the School of Commerce and Finance.

Credit in accounting subjects will be given provided a student is able to pass the examinations prescribed.

SPECIAL STUDENTS

Under this heading are classed those who enroll for one or more subjects but who do not wish to pursue a complete course. Special students may later become candidates for a degree, in which case they will be credited with all work satisfactorily completed.

One may elect to take accounting subjects only, or he may take Law and Accounting subjects as provided in the Professional Accountancy course, thus omitting Economics, Modern Industrial Combinations, etc. The completion of a special programme consisting of Law and Accounting subjects as prescribed in the Professional Accountancy programme should prepare one to pass the C. P. A. examinations. In fact, the Professional Accountancy programme is designed to provide a man with a much more complete preparation in accountancy than is contemplated by the C. P. A. examinations in any state. None of the C. P. A. examinations call for an exhaustive knowledge of System Building and Cost Accounting—two of the most highly technical branches of accountancy.

The following subjects are included in the Business Administration course but a man may enroll for any one or more of them:

Buying	Real Estate
Publicity	Salesmanship
Sales Managership	Corporation Finance
Commercial Credits	Investments

There are few men engaged in business who could not secure some valuable ideas from the lectures dealing with any one of the above subjects. The lecturers are specialists of wide experience, and they contribute to those who attend their lectures the gist of their practical knowledge which it has taken them years to acquire.

There is no better way to prepare for advancement than by

SCHOOL OF COMMERCE AND FINANCE

being ready when the opportunity for advancement occurs. It costs nothing to carry practical knowledge once it is acquired, and it is the most useful, productive kind of knowledge that one engaged in business can possess. A man engaged in selling should have a working knowledge of Publicity and Commercial Credits because each of those departments are so closely related to his work; and he should understand the organization and administration of a Purchasing Department in that he may have a larger appreciation of the opposite side of his vocation. Regardless of the particular department of a business in which a man may be engaged, he is worth far more to himself and to his business if he possesses a broad knowledge of the organization and administration methods of the other departments. It costs so little to acquire such a knowledge from an authoritative source that it behooves ambitious men to embrace the splendid opportunities offered by the School of Commerce and Finance.

During the school year 1913-14 there were probably 150 men attending the lectures dealing with the foregoing subjects whose ages ranged from forty to fifty-seven years. The School of Commerce and Finance particularly welcomes to its classes business men advanced in years. None are too old to profit by the instruction given, and to reflect dignity and inspiration on the student body.

Graduation Requirements

Candidates for the degree of B. C. S.

The degree of B. C. S. will be conferred upon any man who is a graduate of an approved high school and who has had at least two years of satisfactory business experience, if he completes all term work and examinations prescribed in either of the courses offered by the School of Commerce and Finance with a grade of "C" or higher.

Conditional Candidates for the degree of B. C. S.

A man who is not a high school graduate may enroll for either of the courses offered by the School of Commerce and Finance as a conditional candidate for the degree of B. C. S. Whether he receives the degree depends upon three factors: 1st—Business experience. 2nd—Ability to complete seventy-five per cent of the term work prescribed in either of the courses with a grade of "B" or higher and the balance of the term work with a grade of "C" or higher. 3rd—Ability to pass fifty per cent of all examinations prescribed in the course for which he is enrolled with a grade of "B" or higher and the remaining fifty per cent with a grade of "C" or higher.

Candidates for the degree of M. C. S.

Candidates for the degree of Master of Commercial Science (M.C.S.) must hold the degree of Bachelor of Commercial Science from an approved school of Commerce and Finance. They are required to take a one-year graduate course, subject to the direction of the faculty, and to pass examinations upon the subjects therein pursued. They may also be required to prepare a thesis independently which shall be approved by a vote of the Faculty before the degree is conferred.

MINIMUM REQUIREMENTS FOR ATTENDANCE

Eighty per cent of attendance in each subject is prescribed as a minimum requirement for graduation, except in the case of illness or other unavoidable causes.

SCHOOL OF COMMERCE AND FINANCE

HONORARY DISTINCTION

Two honorary designations are granted at the time of conferring the degree of B. C. S.:

WITH HIGHEST HONOR, to those who complete all term work and examinations throughout their course with at least 90 per cent of A's and no marks below B. Thus out of twenty-six marks one would have to secure at least twenty-three A's.

WITH HONOR, to those who complete all term work and examinations throughout their course with at least 50 per cent of A's and of the balance 75 per cent of B's. Thus out of a total of twenty-six marks one would have to secure at least thirteen A's, ten B's and three C's.

EXCELLENT OPPORTUNITIES FOR COLLEGE GRADUATES AND COMMERCIAL TEACHERS

College Graduates

The excellent opportunities offered in the comparatively new field of professional accountancy, the demand for specially trained men for business administrative positions, and the opportunities in financial institutions open to properly qualified men, should be of interest to college graduates who contemplate business careers. The School of Commerce and Finance offers to such men an opportunity to acquire through its evening courses such practical knowledge as will be of greatest service to them.

Commercial Teachers

There is a demand for teachers of accounting, economics, business law, etc., and the work is both pleasant and remunerative. High schools throughout the country are adding commercial subjects to their programmes; many of them are offering elaborate four-year commercial courses; and commercial high schools are not uncommon in our larger cities. The field of commercial teaching offers most attractive opportunities to those who are properly prepared. The Professional Accountancy course or the Business Administration course affords a

GRADUATION REQUIREMENTS

splendid preparation for those who desire to prepare for teaching commercial subjects.

It is very desirable for teachers of commercial subjects to acquire a practical knowledge of bookkeeping and business methods. Most commercial school text books on bookkeeping do not present the subject in conformity with the ideas of modern practitioners, or in accordance with modern business methods. Hence commercial teachers who have not had the sort of training that is offered by this Institution are very much handicapped in their work on account of such antiquated, impractical and unreliable text books. Unless their knowledge is far broader and much more up-to-date than the texts they use, they are unable to properly modify them so as to secure the best results.

Commercial teachers should possess a far more advanced knowledge of the subjects they intend to teach than that which they expect their students to acquire. To do this they must go beyond the covers of their text-books and seek knowledge from those who have gained theirs by practical experience. A competent commercial teacher should be a specialist in his subjects. He should have a knowledge of modern bookkeeping practice and procedure, science of classification, business methods, elements of system building, elements of cost accounting, elements of auditing, business law, principles of economics, money and banking, corporation finance, modern labor problems, modern industrial problems, and industrial organization and business management.

Experience has shown that commercial teachers grasp the subject of higher accounting very readily and that when they get into actual practice they make rapid progress. This may be accounted for by the fact that their teaching experience promotes habits of care and precision and a conscientious regard for details. It requires them to analyze their own knowledge in order that they may clearly impart it to others. Some of the most essential characteristics of a successful accountant are more highly developed in the commercial teacher than in any other class of men, and because of this commercial teachers should be alert to the opportunities offered in business and in the accountancy profession for specially trained men.

SCHOOL OF COMMERCE AND FINANCE

REGISTRATION

No registration fee is charged but it is expected that those who desire to enroll in the School of Commerce and Finance will pay at the time of registering one-third of the tuition fee charged for the course or subjects for which they enroll. An application for registration will be found in the back of this catalogue. This should be made out in detail by those who desire to register for either of the regular courses. If one desires to register as a special student it is not necessary to make out one of these applications. The application for registration should be presented at either the downtown office, 53 State Street, or at the regular office of the School. At this time it is necessary to make out an enrollment card and a Y. M. C. A. membership card. The payment of one-third of the tuition fee should be made at this time for which a receipt will be issued.

It is very desirable that those who contemplate enrolling in the School of Commerce and Finance should meet the registration requirements and make their first payment not later than September 15th. This applies more particularly to the entering classes. It is of great assistance to the Dean's office in making plans for these classes and in ordering stationery to know as early as possible the number for which to plan. It also becomes necessary to limit both the entering classes and naturally those who register first will have first preference in case all who wish to register cannot be accommodated.

TUITION FEES

All tuition fees include membership fee in the Y. M. C. A. Therefore, if one enrolls as a special student for more than one subject the Y. M. C. A. membership fee of \$2 will be deducted from each tuition fee paid in excess of the first one; *e. g.*, should one enroll for the Publicity and Salesmanship courses the tuition would be \$15 and \$13 respectively.

All tuition fees are payable as follows:

One-third on or before date of entering.

One-third on December 1st.

Balance on February 1st.

GRADUATION REQUIREMENTS

Tuition fees for special students are based on the rate of \$12 per hour running through the year, or \$6 per hour running through a term. An evening is reckoned as 2½ hours.

Schedule of Tuition Fees

Either of the four year evening courses:

1st year	.	.	.	.	.	.	.	\$60.00
2nd year	.	.	.	.	.	.	.	60.00
3rd year	.	.	.	.	.	.	.	75.00
4th year	.	.	.	.	.	.	.	75.00

Either of the three year evening courses, which are open only to men who pass the examination for advanced standing:

1st year	.	.	.	.	.	.	.	\$75.00
2nd year	.	.	.	.	.	.	.	75.00
3rd year	.	.	.	.	.	.	.	75.00

Business law and economics are termed half-evening courses, and the tuition fee for either is \$15 per year.

All other subjects are termed full-evening courses, and the tuition for a full-evening course is \$30 per year, or \$15 for a half year.

EXPENSES FOR BOOKS, STATIONERY AND LECTURE NOTES

Books and Stationery

The expense for books and stationery varies according to the course or group of subjects selected. It amounts to approximately \$12 per year for either of the regular courses. For any one of the lecture courses it averages about \$3.

Lecture Notes

A court reporter is present at each lecture for the purpose of providing verbatim copies. Typewritten copies of each lecture may be purchased by students on the evening on which the class next meets, at the uniform prices stated hereunder regardless of the number enrolled in a class:

8 pages or under (single space) 20c.

9 to 11 pages inclusive (single space) 25c.

12 pages or over (single space) 30c.

The purchase of these notes is purely optional with the students. The object in providing them is to obviate the necessity of taking notes, thus permitting one to concentrate

SCHOOL OF COMMERCE AND FINANCE

his mind entirely on the lecture. The taking of notes has a distracting tendency and it is exceedingly tedious work. Students find that the verbatim notes of lectures are an invaluable aid.

BOARD AND ROOM

There are 267 attractive rooms in the dormitories of the new Association Building, the weekly rate ranging from two to four dollars. The demand for these rooms is so great that it is very difficult to secure one except by filing an application well in advance. Such applications should be filed with W. M. Danner, Office Secretary, 316 Huntington Avenue.

Rooms in private families, with or without table board, are registered at the Dean's office, where assistance will be given to those who desire accommodations. Single rooms can be secured for from \$2.50 to \$4.00 per week. A room suitable for two can be secured for from \$4.50 to \$6.00 per week.

Table board consisting of two meals on each week-day and three on Sunday can be secured for from \$4.50 to \$6.00. Excellent meals are served in the Association Restaurant at very reasonable rates.

EMPLOYMENT FOR STUDENTS OF THE SCHOOL OF COMMERCE AND FINANCE

The Dean will render assistance to those who desire to locate in Boston in order to attend the School of Commerce and Finance.

Students are urged to refer all vacancies which come to their attention to the Dean's office in order that such vacancies may be brought to the attention of those who may be interested. In this way students can be of great service to one another. In the student body of the School of Commerce and Finance there is evidenced a very marked degree of willingness to co-operate in this respect in every way possible.

Description of Courses

Two regular courses of instruction are offered in the School of Commerce and Finance.

Business Administration

Professional Accountancy

These courses are specially arranged with a view to affording students the most complete preparation possible for their chosen careers. Entire elective freedom is not permitted because it is believed that the members of the Faculty are in a better position than the students to know which subjects should be included in a given course in order to properly train men for the class of work contemplated by that course.

Candidates for the degree who are allowed credit for subjects satisfactorily completed at other institutions may substitute other subjects in place of those for which they are given credit.

Special students are permitted to elect any subject or group of subjects, provided their programmes do not conflict with the regular programmes of the School.

Students are permitted to transfer from one course to another at the close of the second year, as the first two years of both courses parallel one another.

Special attention is called to the description of subjects on pages 41—54.

BUSINESS ADMINISTRATION COURSE

The purpose of this course is to provide men who contemplate successful business careers with a broad, practical and modern preparation for their chosen work; and to enable men who are engaged in business to increase their ability and to become thoroughly capable specialists.

There is a great demand in business for men who are capable of developing into specialists,—such as office managers, cost accountants, comptrollers, financial men, credit men, salesmen, sales managers, publicity managers, buyers, etc. This course gives a man the proper foundation upon which to build the successful career of a specialist in that particular branch of

SCHOOL OF COMMERCE AND FINANCE

business administration for which his business experience and aptitude indicate that he is best fitted. It is not designed to develop a specialist in any one particular line, but rather to train an all-around business administrator who will readily "fit in" to a position, adjust himself to its peculiar needs, and overcome what would be to those with insufficient training insurmountable obstacles. The finishing touches of a specialist in business administration must result from actual business experience, but the finishing touches can not precede the foundation. Experience alone is a slow and narrow builder of foundations, and in this age where the law of "the survival of the fittest" is so manifest, it behooves a man to recognize the importance, if not the absolute necessity, of securing proper technical preparation before he undertakes to sell his services in the open business market. The first question asked is "What can you do?" and the age of apprenticeship is past. The man who takes this course is prepared to show what he can do, and his progress will be much more rapid than that of a person of equal business experience who has not had the same kind of training.

The programmes of the Business Administration course and of the Professional Accountancy course run parallel during the first two years. Thereafter, those who elect the former course are required to take in the first half of the third year Elements of System Building and Cost Accounting on Monday and Friday, Modern Labor Problems and Law II on Wednesday; and in the last half of the third year Buying on Tuesday, Modern Industrial Combinations and Law II on Wednesday, and, in addition, either Investments on Tuesday evening during the first half year or Salesmanship on Thursday evening during the last half year, or one may take both of these subjects, if he so desires, without any additional charge. In the first term of the fourth year one is required to take Commercial Credits on Tuesday, Industrial Organization and Business Management and Law III on Wednesday, and Publicity on Thursday; and in the second term Sales Managership on Tuesday, the same subjects on Wednesday evenings as are required in the first term, and Salesmanship on Thursday in case it is not elected in the third year. If Salesmanship is elected in the third year then Real Estate may be taken on Fridays throughout the fourth year, or an advanced

DESCRIPTION OF COURSES

course in Publicity may be taken on Thursday evenings during the second term.

A student who elects the Business Administration course must take at least three full evenings during the last two years and may take an additional evening without making extra payment.

For programme of this course see pages 37 and 38.

PROFESSIONAL ACCOUNTANCY COURSE

Twenty years ago the profession of accountancy was practically unknown in America, save amongst the comparatively few business men who engaged auditors or so-called "expert accountants" to check up their books, detect errors in their trial balances, close their books, etc. The total number of men who devoted their entire time to public accounting in this country prior to the year 1890 cannot be definitely stated, but it probably did not exceed 100. At the present time there are about 5000 men who are engaged in professional accountancy work in the United States. The membership of the American Association of Public Accountants numbers over 1200 practically all of whom are Certified Public Accountants.

The duties of the professional accountant of today are varied and complex. He is called upon to make periodical examinations of the books and accounts of all classes of business and to report the results of his examination, so that those interested may ascertain from his report the true condition of affairs and the results from operations. He is called upon to make special investigations in behalf of interested capitalists, prospective investors, creditors, bankers, etc. In the case of consolidations he is called upon to examine into the affairs of each company which is a party to the proposed amalgamation in order to provide a proper basis for determining the value to be placed upon each business, its average earning capacity during a given number of years, etc. He is called upon to design and install accounting systems which will reduce to a minimum the possibilities of irregularities, and which will enable the management to ascertain what they want to know when they want to know it. The functions of the professional accountant in this age of complex business activities is becoming more and more varied. The requirements are very broad and exacting, calling for a high degree of technical skill, a familiarity

SCHOOL OF COMMERCE AND FINANCE

with every phase of business organization and administration, a knowledge of business law, special training in matters of corporation finance, money and banking, and finally the qualities of honesty, moral courage, breadth of vision and insight.

This course prepares men for the accountancy profession by providing broad practical training in those subjects that are essential to the proper preparation of a professional accountant. The technical instruction is given by professional accountants of wide experience. It fits students to pass the C. P. A. examinations, but that is a secondary feature. It is distinctly a professional course, having for its chief aim the best possible preparation for the accountancy profession.

Not all men who may enroll for this course are temperamentally fitted for the profession of accountancy, while others who take the course are better fitted to take positions as office managers, traveling auditors, chief accountants, etc. The Head of the accounting department will be glad to confer with students who show, after completing their first year, that they are better fitted for a business administrative position than for public practice, with a view to assisting them in making the wisest selection.

For programmes of this course see pages 39 and 40.

Although the accountancy profession offers attractive inducements to ambitious men who are properly prepared to take up this kind of work, the opportunities in this new profession are no more numerous or alluring than the opportunities in private practice for men prepared to fulfill the duties of cost accountants, auditors, office managers, chief accountants, etc. There is a rapidly increasing demand for men who are prepared for this kind of work and the opportunities offered thereby are rather more attractive than the opportunities offered in public accounting. In fact, the majority of men who join the accountancy profession do not remain in it. They are constantly advertising their ability with the result that a demand is created for their services through the willingness of business enterprises to pay them a larger salary than they are able to secure in public accounting. There are splendid opportunities in accounting work but they are by no means restricted to the accountancy profession.

DESCRIPTION OF COURSES

FOUR-YEAR BUSINESS ADMINISTRATION COURSE

Hour Plan

	FIRST TERM		SECOND TERM	
FIRST YEAR	Mon.	Wed.	Mon.	Wed.
Law I		7.00-8.15		7.00-8.15
Accounting I.....	7.00-9.30	8.15-9.30	7.00-9.30	8.15-9.30
SECOND YEAR	Wed.	Fri.	Wed.	Fri.
Accounting II	7.00-8.15		7.00-8.15	
Elements of Economics.....	8.15-9.30		8.15-9.30	
Construction of Financial Statements		7.00-9.30		7.00-9.30
Elements of Auditing				
THIRD YEAR	Mon.	Tues.	Fri.	Thurs.
Elements of System Building and Cost Accounting	7.00-9.30		7.00-9.30	
Law II		7.00-8.15		7.00-8.15
Modern Labor Problems		8.15-9.30		8.15-9.30
Modern Industrial Combinations			7.00-9.30	
Buying				7.00-9.30
Salesmanship				7.00-9.30
Elective	7.00-9.30			
FOURTH YEAR	Tues.	Thurs.	Tues.	Fri.
Commercial Credits.....	7.00-9.30			
Industrial Organization and Business Management				
Law III	7.00-8.15		7.00-8.15	
Publicity	8.15-9.30		8.15-9.30	
Sales Management		7.00-9.30		
Real Estate			7.00-9.30	
Elective	7.00-9.30			7.00-9.30

(An intermission of ten minutes is given each evening at 8.10.)

THREE-YEAR BUSINESS ADMINISTRATION COURSE

Only those who have passed the examination for advanced standing are eligible to this course.

Hour Plan

	FIRST TERM		SECOND TERM	
FIRST YEAR	Tues.	Fri.	Tues.	Fri.
Accounting IIA	7.00-9.30		7.00-9.30	
Law I				
Elements of Economics	7.00-8.15		7.00-8.15	
Construction of Financial Statements	8.15-9.30		8.15-9.30	
Elements of Auditing		7.00-9.30		
Second Year { parallels the work of the Third				7.00-9.30
Third Year { " " Fourth				

(An intermission of ten minutes is given each evening at 8.10.)

DESCRIPTION OF COURSES

FOUR-YEAR PROFESSIONAL ACCOUNTANCY COURSE

Hour Plan

	FIRST TERM		SECOND TERM	
FIRST YEAR	Mon.	Wed.	Mon.	Wed.
Law I		7.00-8.15		7.00-8.15
Accounting I	7.00-9.30	8.15-9.30	7.00-9.30	8.15-9.30
SECOND YEAR				
Accounting II	Wed.	Fri.	Wed.	Fri.
Elements of Economics	7.00-8.15		7.00-8.15	
Construction of Financial Statements	8.15-9.30		8.15-9.30	
Elements of Auditing		7.00-9.30		7.00-9.30
THIRD YEAR				
Elements of System Building and Cost Accounting	Mon.	Fri.	Mon.	Fri.
Advanced System Building and Cost Accounting	7.00-9.30	7.00-9.30	7.00-9.30	7.00-9.30
Law II		7.00-8.15		7.00-8.15
Modern Labor Problems		8.15-9.30		8.15-9.30
Modern Industrial Combinations				
FOURTH YEAR				
Advanced Accounting Problems	Mon.	Fri.	Mon.	Fri.
Industrial Organization and Business Management	7.00-9.30		7.00-9.30	
Law III		7.00-8.15		7.00-8.15
Advanced Auditing		8.15-9.30		8.15-9.30
		7.00-9.30		7.00-9.30

(An intermission of ten minutes is given each evening at 8.10.)

THREE-YEAR PROFESSIONAL ACCOUNTANCY COURSE

Only those who have passed the examination for advanced standing are eligible to this course.

Hour Plan

	FIRST TERM		SECOND TERM	
	Tues.	Fri.	Tues.	Fri.
	7.00-9.30		7.00-9.30	
FIRST YEAR				
Accounting IIA				
Law I				
Elements of Economics	7.00-8.15		7.00-8.15	
Construction of Financial Statements	8.15-9.30		8.15-9.30	
Elements of Auditing		7.00-9.30		
Second Year { parallels the work of the Third				
Third Year { " " Fourth				
(An intermission of ten minutes is given each evening at 8.10.)				7.00-9.30

DESCRIPTION OF COURSES

DESCRIPTION OF SUBJECTS

Department of Accountancy

All written work is critically examined, graded and returned to students. All work with a mark of "D" is required to be repeated.

Accounting I

This subject is required throughout the Freshman year and covers the fundamental principles of accounting theory and practice. Students are given practice work illustrating the simplest methods of double entry bookkeeping. Carefully prepared sets which illustrate accounting principles in conformity with the ideas of modern practitioners are required to be worked up by the students in order to develop a practical knowledge of double entry bookkeeping. Frequent lectures are given bearing upon principles, classification, bookkeeping technique, and the form and arrangement of financial statements. Upon the completion of the first year students will have acquired a thorough training in bookkeeping as applied to retail and wholesale businesses, and in the preparation of balance sheets and profit and loss statements.

The Freshman class in accounting is divided into four sections, designated as A, B, C, and D.

Sect.	Room No.	Mon.	Tues.	Instructor	Wed.	Instructor
A	353-4	7.00-9.30		Mr. Keating	8.15-9.30	Mr. Keating
B	355-6	7.00-9.30		Mr. Laird	8.15-9.30	
C	451		7.00-9.30	Mr. Clapp	8.15-9.30	} Mr. Thompson
D	255	7.00-9.30		Mr. Thompson	8.15-9.30	

Accounting II

This is a logical continuation of Accounting I, and is required throughout the Sophomore year of either of the four-year courses.

Advanced bookkeeping as applied to manufacturing, national banking, etc., is thoroughly taught by means of practice work and lectures. Advanced problems in opening and closing entries, consolidations, receiverships, etc., are assigned for practice. Students are given special training in accounting methods of various businesses. Special emphasis is placed upon classification as applied to mercantile and manufacturing businesses, banking and institutional accounts.

Wednesday evening from 7 to 8.15, in Room 255. (Mr. Rittenhouse).

Accounting IIa

Required throughout the first year for those who are admitted with advanced standing. Thorough training is given in the science of classification and bookkeeping technique. Students are required to write up several sets of books, including a wholesale mercantile set, a complete banking set, and a manufacturing set. A great variety of practice work is given in making adjusting entries, closing entries, balance sheets and profit and loss statements. Lectures are given bearing upon the theory of accounts, bookkeeping practice and procedure, and the form and arrangement of financial statements.

Tuesday evening from 7 to 9.30, in Room 361. (Mr. Bentley).

Construction of Financial Statements

This subject is required during the first term of the Sophomore year of either of the four-year courses. Those who are admitted with advanced standing are required to take it during the first term of their first year. Lectures are given dealing with the form and arrangement of financial statements applicable to all kinds of businesses. Students are given intensified practice work in preparing financial statements in making closing and adjusting entries, and in solving

SCHOOL OF COMMERCE AND FINANCE

practical accounting problems. On at least two-thirds of the evenings allotted to this subject the students are required to assemble in the main study hall and work out some particular problem within a given time. This practice in working under pressure develops quick thinking and rapid execution and is an excellent preparation for those who contemplate taking the C. P. A. examination. All practice work is carefully examined, graded and returned to the students. The term mark at the close of a year expresses in the aggregate the results of practice work and tests turned in by students during the year.

Friday evening from 7 to 9.30, in Rooms 255 and 353-356. (Mr. Bentley and Mr. Rittenhouse).

Elements of Auditing

Required during the second term of the Sophomore year of either of the four-year courses, and during the second term of the first year for those who enter with advanced standing. The elementary principles of auditing in theory and practice are taught by means of lectures, assigned reading and illustrations. Excellent practice work is provided by having each student audit a mercantile set of books, in conformity with a detailed programme dictated and explained by the instructor. All working papers are required to be made in proper form, and an audit report covering the examination is prepared in accordance with the form and arrangement illustrated by model audit reports furnished to the students.

The entire time set aside for this subject is devoted to mercantile and manufacturing audits, so that all students taking regular courses are given thorough training in the principles of auditing as applied to the greatest number of businesses.

The basis of this course consists of typewritten notes treating the elements of auditing in conformity with the lectures.

Friday evening from 7 to 9.30, in Boys' Hall. (Mr. Bentley).

Elements of System Building and Cost Accounting

Required during the first term of the Junior year of either of the four-year courses. This subject treats of the fundamental principles of system building as applied to all classes of business. The students are first taught the science and art of rulings. Lectures are given bearing upon the proper methods of handling and recording cash receipts and disbursements, purchases, sales, returns, etc. Each student is furnished with several complete sets of forms—each set representing a modern accounting system which is in successful operation. These sets are fully explained and the students are required to write a brief set of instructions for each one showing the functions of each form and its relations to the accounting scheme as a whole. They are then required to design, from specifications furnished, a complete accounting system including all forms used in connection therewith. In connection with this system they are required to write a complete set of instructions for its conduct, including a detailed description of the functions of each book and form, and each ledger account employed in the general ledger. Lectures are given on the standard sizes and grades of ledger papers, the different kinds of bindings, and the way in which to frame specifications for book making and form printing. Loose leaf binders and card systems are exhibited and explained, and their advantages and weak points are brought out in the discussions.

A series of lectures is given on the mathematics of cost accounting, the object being to teach students how to solve the more complex mathematical problems involved in modern accounting; *e. g.*, the use of logarithm tables in amortizing sinking funds, bond premiums, depreciation reserves, etc.; comparison of true discount, bank discount, and accurate interest; how to compute electric power consumption; how to compute horse power consumption; how to determine air consumption; how to exhibit comparative statistics by means

DESCRIPTION OF COURSES

of graphic diagrams; how to compute the number of square feet contained in a surface the sides of which are irregular; and various other problems which the accountant is called upon to solve from time to time.

The fundamental principles of cost accounting are taught by means of lectures and illustrations. The three elements of production cost are treated in relation to the "shop order" and "process" methods. Lectures are given in which costing and factory terms are defined and the different methods of distributing "overhead" expenses explained and illustrated. Special emphasis is placed upon the most scientific method of distributing expense burden.

Monday evening from 7 to 9.30, in Room 352 (Mr. Pearson); Friday evening from 7 to 8.15 during the first term in Room 352 (Prof. Bacon), and from 8.15 to 9.30, in Room 352 (Mr. Bentley). Friday evening from 7 to 9.30 during the second term, in Room 352 (Mr. Bentley).

Advanced System Building and Cost Accounting

Required in the second term of the Junior year of the Professional Accountancy course. Lectures will be given by two professional accountants who are specialists in cost accounting, and by men who are particularly familiar with the accounting methods of various lines of business. Production methods and the more technical phases of cost finding will be treated in these lectures, and emphasis will be placed upon the importance of designing cost systems which meet the requirements of a business rather than burden the administration with fanciful theories which either conflict with the operations of the business or result in a failure when put to the test of practical application.

Students taking this subject will be required to design a complete cost system from particulars furnished, and to write a set of instructions for its conduct.

This course is a logical continuation of the Elements of System Building and Cost Accounting, and consists of lectures and practice work. Several intricate accounting systems, each one representing a different kind of business, are furnished to the students. The technique of these businesses is fully explained, and the student is provided in each case with the information that would be ordinarily required by an accountant if called upon to design an accounting system for a business with which he is not familiar. From this information a student is required to prepare a set of instructions for the conduct of each system.

Monday evening from 7 to 9.30, in Room 352 (Mr. Pearson); and Friday evening from 7 to 9.30, in Room 352 (Mr. Bentley, Mr. Scovell, Mr. Wellington, Mr. Marvin, Mr. Kemp and Mr. Curtis).

Advanced Auditing

Required throughout the Senior year of the Professional Accountancy course. This subject is presented chiefly by means of lectures and quizzes.

The lectures deal with auditing as applied to mercantile and manufacturing enterprises, financial institutions, clubs, public utilities, insurance companies, etc.; and with special investigations, the preparation of audit programmes and audit reports.

The quizzes are conducted by assigning a certain number of C. P. A. questions in auditing and then calling for answers to those questions at the next meeting of the class, at which time the instructor discusses the answers submitted. The members of the class are required to submit written answers to a certain number of audit questions each week, which are corrected, graded, and returned to them the following week.

During the second term each member of the class is required to make a complete audit of a National banking set, and submit a report setting forth the results of his audit.

Friday evening from 7 to 9.30, in Room 351. (Mr. Willing).

Advanced Accounting Problems

Required throughout the Senior year of the Professional Accountancy

SCHOOL OF COMMERCE AND FINANCE

course. This subject is presented by means of lectures, demonstrations and practice work assigned to be done outside of class hours.

The lectures during the first term deal with the general principles underlying the correct solution of advanced problems in partnership settlements, amalgamations, consolidations, receiverships, trustees and executors' accountings, fire insurance adjustments, etc.

The solution of practical accounting problems are demonstrated by the instructor and discussed at length, and selected C. P. A. questions in practical accounting are required to be solved and submitted by the members of the class.

During the second term a series of special lectures are given by specialists in their respective lines, dealing with the accounts and accounting methods of gas, electrical and street railway corporations, municipalities, executors and trustees, and life insurance companies.

Monday evening from 7 to 9.30, in Room 351. (Mr. Bentley, Mr. Gidney, Mr. Moyer, Mr. Masters, Mr. Cooley, Mr. Steele, Mr. Crandell, Mr. Gettemy, Mr. Waddell, Mr. Holmes and Mr. Johnson)

DEPARTMENT OF ECONOMICS

Elements of Economics

The purpose of this course is to give a broad survey of the fundamental and universal principles of economic science. After a brief introductory survey of the industrial phenomena of modern times, a detailed analysis of the principles of production, exchange, distribution, and consumption of wealth is taken up. These principles are then studied in their practical applications to such problems of labor as trade unions, child labor, women in industry, workmen's insurance, profit sharing, cooperation, and methods of industrial peace. From the point of view of capital organization, railways, banking, municipal monopolies, trusts, and problems of socialism, are examined. The work closes with a brief survey of the most recent reforms in taxation.

The course is designed to cultivate analytical power, prepare the student for advanced work, and give initiative and resourcefulness in modern business practice.

The work is carried on by means of lectures, text-book assignments, and class room discussions. This course is required throughout the Sophomore year of either of the four-year courses, and is a pre-requisite for all other courses in the department of Economics.

Wednesday evening from 8.15 to 9.30, in Bates Hall. (Dr. Metcalf).

Modern Labor Problems

The modern factory system, re-enforced by mechanical power and highly developed machinery, growing specialization and standardization, and the massing of workers in military organization and discipline, has brought increasing economies on the technical side of production. On the managerial side, however, owing to the striking developments of modern business due to the growth of large-scale operations, a series of increasingly complex labor problems has received more and more study from students, business enterprisers, engineers and factory superintendents. This course deals mainly with the economic, political, and social problems arising from the relations of employers and their laborers. The chief topics will be the growth, methods, policies, and aims of modern associations of wage earners, employer's associations, methods of conciliation and arbitration, compulsory publicity, provident institutions and friendly societies. The course closes with a consideration of the more recent tendencies among laborers toward industrial unionism, and their attitude toward efficiency schemes.

The instruction is given by means of lectures, assigned readings, and class room discussions.

DESCRIPTION OF COURSES

This is a required subject during the first term of the Junior year in either of the four-year courses.

Wednesday evening from 8.15 to 9.30, in Room 352. (Mr. Wilson).

Modern Industrial Combinations

It is the design of this course to study the most striking developments of modern business due to the growth of large-scale operations. Especial emphasis is placed on the so-called trust problem. Among the topics treated are trust promotion, capitalization, the influence of industrial and commercial combinations upon prices, profits, wages, rights of investors, international trade, industrial stability, industrial efficiency and business integrity. The course closes with a consideration of the legal problems resulting from large-scale industry, such as inter-corporate problems, holding companies, consolidation of corporations, and the practical results attained through taxation, publicity and recent court decisions. The work includes lectures, assigned readings and class discussions.

This is a required subject during the second term of the Junior year in either of the four year courses.

Wednesday evening from 8.15 to 9.30, in Room 352. (Mr. Wilson).

Industrial Organization and Business Management

In matters of industrial organization this course considers the principles underlying the modern organization of business, while in matters of management particular emphasis is given to the recent applications of system. After a brief outline of the present tendencies of industrial organization, its forms and chief problems, the course enters into the study of industrial location, types of factory buildings and equipment, the complex problems arising from the concentration and integration of industry, but especial emphasis is placed on problems of internal organization. Concrete illustrations of modern practice in business management are found in the selection and placing of employees, the management of labor, just methods of wage payment, cost and various efficiency methods, bonuses, welfare inducements, the just relation between employer and employed, and the training of employees according to the principles of vocational guidance. Tests of efficiency of business organization and management, such as size, flexibility, continuity of policy, stability, financial and legal liability, scientific placement and promotion follow the analysis of the subject.

The work is carried on by lectures, assigned readings, class room discussion and a study of typical forms and systems. The course is made as practical as possible, and if students can find the necessary time personal conferences will be arranged and visits of inspection made to industrial establishments where efficiency methods are in operation.

The subject is required throughout the Senior year in either of the four year courses, and is open only to students who have taken the Elements of Economics or its equivalent.

Wednesday evening from 7 to 8.15, in Room 351. (Dr. Metcalf).

Corporation Finance

This subject may be elected during the first half of the year and is given on Wednesday evening from 7 to 9.30. It may be taken by any one who desires to acquire a knowledge of the complex problems of the modern corporation. It treats of the problems in finance that have arisen in connection with the corporate form of business organization. It begins with a brief historical survey of the modern corporation, especially the tendencies that have created it. It discusses in detail promotion, syndicate underwriting, methods of financing, the sale of securities, the dividend policy of corporations and the object and methods of reorganization. The course touches briefly on the differences between railroad, industrial and banking corporations, with special reference to different types of securities; it emphasizes the economic and business rather than the legal aspects of corporations.

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It is desirable to take this course in connection with the course in Investments. Tuition fee is \$15.

Wednesday evening from 7 to 9.30 in Room 258. (Dr. Dewing and Mr. Parsons).

Investments

This subject may be elected in the first term of the Junior year by those enrolled for the Business Administration course, or it may be taken as an additional subject.

The subject of Investments is one that should appeal strongly to all men who desire to know how to select investments wisely. The tuition fee for the eighteen lectures is but \$15, and the practical knowledge obtainable from this course of lectures should be worth many times that amount.

In presenting this subject an effort is made to provide authentic, comprehensive instruction for those who desire to learn how to select investments wisely. It should appeal to investors, trustees, students of finance and men employed in banking.

Some idea of the scope of the lectures in Investments may be gained from the following outline:

1. *The Nature of Investments*

Capital and interest; pure interest and risk. The social significance of investment. General history of forms of investments. Investment and speculation.

2. *The Counters of Investment*

Description of various types of bonds, stocks, and certificates of association.

3. *Bonds*

Advantages and disadvantages of investment in equipment trust obligations, first mortgage bonds, underlying and divisional bonds, collateral trust bonds and notes, convertible bonds. Closed and "open end" mortgages.

Changes in interest rates as affecting long and short term bonds.

4. *Stocks*

Advantages and disadvantages of investment in stocks. Discussion of features to be avoided in preferred stocks. Consideration of common stock from the investment viewpoint.

5. *Promotion*

Outline of typical promotions. Promotor, banker, underwriter, and sale to public.

(In the next three lectures students will be furnished with typical corporation reports.)

6. *Analysis of Corporation Reports*

Income accounts.

7. *Analysis of Corporation Reports*

Balance Sheet.

8. *Practical Study of Railroad Accounts*

Detailed study of three railroad reports, with special reference to statistics most important from the investor's point of view.

9. *Railroad Securities in General*

Weak and strong roads, the influence of management, concentration of control. Things to be sought for in buying railroad securities and things to be avoided.

10. *Public Service Securities*

Gas and electric light securities. A few important statistics. Things to be looked for. The holding company. Electric railway securities and the reasons for avoiding them.

11. *Industrial Securities*

The stability and the instability of industrials. The factors to be watched. Certain important statistics that should be compared.

DESCRIPTION OF COURSES

12. *Miscellaneous Securities*

Bank and insurance company stocks. Mining stock and the treatment of the investors' income reserve.

13. *The Market For Securities*

The operation of the New York Stock Exchange. External influences affecting price. Inactive and active stocks. The bond house, its just and fictitious claims.

14. *New Financing of Corporations*

Extensions. Short term notes. Rights. The theoretical value of rights. Dangers of expansions.

15. *Failures and Reorganizations*

The general causes of failure. The significant signs. Reorganization. Assessment and the exchanges of securities. Types of reorganizations.

16. *Pitfalls of Investments*

The things to be avoided. The temptation of too large returns. The fallacy of small return.

17. *Taxes*

State taxes. The income tax.

18. *Distribution of Investments*

Studies in the ideal distribution of investment risks.

Tuesday evening from 7 to 9.30 in Room 258. (Dr. Dewing).

Department of Business Law

Business Law is required throughout the first, third and fourth years of both courses.

Law I—Freshman Year—Wednesday evening from 7 to 8.15 in Bates Hall.

Contracts (12 lectures)

All the main topics are treated, including among others; how contracts arise; who may be parties and who are not bound under contracts; the various kinds of considerations; contracts that are void for illegality, fraud or other reasons; effects of various kinds of contracts; written and verbal contracts and the law of evidence as applied thereto; how contracts are construed; the Statute of Frauds and what contracts are void under that statute; how parties may terminate contracts and what events terminate them without any act of the parties; when specific performance of contracts may be enforced; actions for damages for breach of contracts and what damages may be obtained. (Mr. Newhall).

Agency (5 lectures)

Under Agency will be treated how an agency may arise; agencies by contract, ratification or estoppel; who may be agents, and who may be principals; how an agency may be terminated; what agencies can, and what agencies cannot be revoked; obligations of the principal and agent to one another; liabilities of principals on contracts made by and for torts committed by agents; liabilities of agents to third persons; responsibility of master for injury by his servant, and to his servant; new Workingmen's Compensation Act; also special kinds of agents, such as auctioneers, factors, real estate and other brokers. (Mr. Newhall).

Carriers—(including Public Services and Bills of Lading.) (6 lectures).

This subject includes the public obligations of carriers and other public services as to rates, facilities and discrimination; regulation and control; liability to consignor and consignee, as insurer and warehouseman; limitation of liability by contract; effect of deviation; rights and obligations of the parties to bills of lading, and their indorsees, both at common law and under the uniform Bills of Lading Act; "straight" and negotiable or "order bills"; connecting carriers; misdelivery; Interstate Commerce Act; lien and compensation. (Mr. Dorman). *Personal Property*—(including Sales, Mortgages, Pledges, Bailments, Liens, Warehouse Receipts.) (11 lectures).

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The main topics under personal property are Sales, executory and executed; sales and mortgages of future goods; transfer of title as between vendor and vendee, and risk of loss; insurable interest; statute of frauds; conditions and warranties, express and implied; auction sales; transfer of title as against creditors and subsequent purchasers; negotiable documents of title; delivery and acceptance; seller's lien and stoppage in transit; re-sale and rescission; sales by factors; sales of goods in bulk; C. O. D. sales; mortgages and conditional sales; bailments and fungible goods; warehousemen and warehouse receipts; liens, common law and statutory, except mechanics' liens. (Mr. Dorman).

Law II—Junior Year—Wednesday evening from 7 to 8.15 in Room 352.

Negotiable Instruments, Suretyship and Banking Law (10 lectures)

Essentials of negotiability; forms of bills, notes and checks; makers, payees, indorsers and acceptors; bearer paper; rights of holders in due course; real and personal defenses; acceptance of drafts and certification of checks; demand paper; presentment and notice of dishonor; warranties; alteration; discharge.

In connection with negotiable instruments will be treated the subject of bonds and suretyship, express and implied; discharge of surety; surety's right of indemnity and subrogation.

Also the legal relations of banks and depositors; bank's obligation to honor depositor's check; bank's right of set-off; payment of forged or raised checks, etc. (Mr. Dorman).

Partnership (7 lectures)

Sharing of profits and losses; general, special and dormant partners; firm name; liability to creditors; title to firm property; negotiable paper; partners as agents; dissolution by withdrawal, bankruptcy, death, etc. (Mr. Dorman).

Real Estate, Mortgages, Probate Law and Insurance (17 lectures)

How Real Estate is handled: the rights, liabilities and duties of real estate brokers; agreements for the purchase and sale of real estate.

Ownership, Occupation and Transfer of Real Estate: how real estate is acquired and the nature of titles and estates therein (title in fee, dower, courtesy, etc.; the incidents of ownership, easements, rights against adjoining owners, etc.); how real estate is transferred, (deeds of conveyance, rights and liabilities of joint owners), recording of deeds, examination of titles, etc.

Landlord and Tenant: leases, oral and written; liability for rent; liability of landlord and tenant to third persons and vice versa; termination of tenancies, ejection of tenants, etc.

Mortgages: nature of mortgages; how they are created; assignment, discharge, foreclosure, etc.

Probate Law: rights of inheritance; rights of husband and wife; administration of estates; wills; appointment of executors and administrators; settling of estates generally; trusts and trustees; guardians, etc.

Insurance (including Fire, Life, Accident, Marine Insurance, etc.); various kinds of insurance; nature of insurance; insurable interest; steps necessary to protect the insured, etc. (Mr. Newhall).

Law III—Senior Year—Wednesday evening from 8.15 to 9.30 in Room 351.
Bankruptcy and Business Credit (Including Bankruptcy and Insolvency Assignments for Benefit of Creditors, Receiverships, Credit Representations, Statutes of Limitation, and the means of Collecting Debts.) (9 lectures)

Under this caption will be treated bankruptcy and insolvency under state and federal statutes; the United States Bankruptcy Act; assignments for benefit of creditors, and fraudulent assignments generally; receiverships of all kinds, how appointed and effect of appointment; representations as to credit, mercantile representations; mercantile reports; when debts become barred by the statute of limitations; machinery of courts for collecting bills; poor debtor process; Dubuque process, etc. (Mr. Dorman).

Special Topics (Including Patents, Trademarks, Copyrights, Trade Names, Shipping Laws, Taxation, etc.) (8 lectures)

DESCRIPTION OF COURSES

In this series of lectures will be treated a variety of special topics, not covered by the preceding topics, and not broad enough to call for special topic headings. (Mr. Dorman).

Corporations and Transfer of Stock (15 lectures)

Under this topic will be treated the various kinds of corporations; formation under general and special laws; powers of corporations and ultra vires acts; by-laws; officers; capital stock; shareholders' rights and liabilities; powers and liabilities of officers and directors; shareholders' and directors' meetings; transfer of shares; rights of minority stockholders; voluntary associations and joint stock companies; public service corporations; voting trusts; dissolution; reports and returns. (Mr. Dorman).

BUSINESS ADMINISTRATION SUBJECTS AND ELECTIVES

Buying

This subject is presented in sixteen lectures on Tuesday evenings from 7 to 9.30 in Room 258.

This series of lectures is open to men over eighteen years of age. There are no entrance requirements for those who desire to enroll for this subject only, and no maximum age limit. It is a required subject during the second term of the Junior year in the Business Administration course.

The object of the course in buying is to provide one with the next best thing to a knowledge gained from a broad, practical experience in buying, the acquisition of which would require years of service. The lecturers are specialists of recognized ability, the mere mention of whose names is a sufficient evidence of the genuine worth of the course. They bring to the members of the class the gist of their practical knowledge, so that those who take the course may thus secure useful information which it might take years to acquire through practical experience alone.

The course in Buying should appeal to assistants employed in purchasing departments; it should do much to broaden their views and to make them more valuable to themselves and their employers. It should appeal to buyers who appreciate the value of an interchange of ideas; to them this course should serve as a clearing-house of modern ideas in buying. Finally the course should prove of inestimable value to men who desire to secure a knowledge of the organization and administration of purchasing departments as a matter of general business education.

The following outline will convey some idea of the scope of the lectures:

Essential qualifications of a successful buyer.

Organization and administration of a purchasing department.

Relation of the purchasing department to the other departments of a business organization.

Importance of co-operation between the purchasing department and the other departments of the business.

Close relationship between purchasing and financial departments.

Records of a purchasing department.

Methods of securing and filing quotations, catalogs, price lists, clippings, etc.

Importance of trade magazines and papers.

Keeping in touch with new inventions, new methods and new productions that may be of interest to the different departments of the business.

Attitude of buyer toward salesmen who call at his office.

Importing, and studying foreign markets.

Resourcefulness of buyer in meeting the demand for unlimited variety of commodities.

Market conditions and their effect on prices.

Season buying, and buying a year's stock in advance.

Charting price fluctuations in past years as a basis for future calculations.

Anticipating a rising or falling market and planning accordingly with the financial department.

Buying on specifications.

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Quality tests.

Keeping records for determining uniformity in quality, productiveness, etc., of supplies consumed.

Applying relative quality to prices in order to determine whether it is more economical to buy a cheaper or a higher priced commodity.

Traffic rates, trade discounts, cash discounts, and interest, in their relation to the purchasing department.

Evils of over-stocking and under-stocking.

Keeping track of stock and supplies.

The science of merchandising in large retail establishments.

Lecturers

Mr. Charles A. Brown, General Purchasing Agent, Regal Shoe Company

Mr. F. P. Mooney, Purchasing Agent, Charles H. Tenney & Company

Mr. Luther P. Cudworth, Purchasing Agent, Christian Science Publishing Society

Mr. Edgar H. Savage, Purchasing Agent, W. F. Schrafft & Sons Company

Mr. Charles F. Shirley, Purchasing Agent, The Forbes Lithograph Manufacturing Company

Mr. H. R. Lane, Assistant Merchandising Manager, Wm. Filene's Sons Company

Mr. Jesse S. Wiley, Business Secretary, Boston Y. M. C. A.

Mr. H. C. Bentley, Dean of the School of Commerce and Finance

Salesmanship

The subject of Salesmanship is presented in eighteen lectures and demonstrations on Thursday evenings from 7 to 9.30 in Room 361.

Those who are enrolled for the complete Business Administration course are advised to take this subject during the second term of their Junior year. If not taken then it should be elected as a Senior subject.

Any man who desires to acquire a knowledge of the fundamental principles of salesmanship may enroll for this course of lectures, the tuition fee being \$15. It is without a doubt one of the most useful and essential subjects offered by the School of Commerce and Finance. Every man has something to sell,—either goods or services, and the ability to sell is a valuable qualification to possess. The purpose of this course of lectures is to develop that ability.

The course is under the directorship of Mr. Harry N. Haven, Manager of the Phoenix Mutual Life Insurance Company.

The following brief outline will convey some idea of the scope and character of the lectures in Salesmanship:

- | | | | |
|----|----------|----------|---|
| 1. | February | 9, 1915. | INTRODUCTION |
| | | | Salesmanship defined |
| | | | Opportunities |
| | | | Mental Law of Sale |
| 2. | " | 16 | The Salesman |
| | | | The Old Type and the New |
| | | | How to determine VALUE |
| | | | Triune Man |
| | | | What qualities make for Efficiency |
| | | | How to develop our Positives |
| 3. | " | 23 | Mental Efficiency |
| | | | Thinking and Remembering |
| 4. | March | 2 | Imagination |
| | | | Its Value and its use in Salesmanship |
| 5. | " | 9 | Our Greatest Ability |
| | | | Health an important asset |
| 6. | " | 16 | The Will and its Development |
| 7. | " | 23 | Suggestion and Auto-Suggestion |
| 8. | " | 30 | Arnold Bennett's contribution to Salesmanship |

DESCRIPTION OF COURSES

9.	April	6	The Goods Analysis—Synthesis
10.	"	13	The Customer Types Old Customers vs. New
11.	"	20	Motives which induce Sales
12.	"	27	Sales Letters—Their uses and construction
13.	May	4	Initiative
14.	"	11	Demonstration
15.	"	18	Some more Points of Value
16.	"	25	Demonstration
17.	June	1	The Law of Growth
18.	"	8	REVIEW

Publicity

This is a required subject during the first term of the senior year in the Business Administration course. It is presented in eighteen lectures on Thursday evenings from 7 to 9.30, in Room 352. These lectures are given by specialists of wide experience, and the course is under the directorship of Mr. William J. Boardman of the firm of George Batten Company.

Men who are not pursuing any course in the School of Commerce and Finance, but who desire to secure a knowledge of the fundamental principles of modern publicity methods may register for this course of lectures,—the tuition fee for which is \$15.

A knowledge of the practical working of advertising, and the underlying principles of scientific distribution through publicity and proper selling methods, are matters of vital importance to men who choose a business career.

There are excellent opportunities open to men properly fitted to take positions in the advertising departments of large mercantile and manufacturing establishments. The successful advertising man must have a particularly broad knowledge of business affairs as well as a keen insight into human nature. The former is provided for in the programme of the Business Administration Course. It affords a broad practical training in those subjects with which the advertising man's work is closely correlated.

The following outline will convey some idea of the scope and character of the Course in Publicity:

The Course is divided into four groups of lectures dealing with

- (a) Direct Advertising
- (b) Retail Advertising
- (c) National Advertising
- (d) General and special topics not falling under the foregoing heads.

Group "a" deals with the proper use of sales letters, circular letters, booklets, pamphlets, samples, etc., giving instruction not only in the writing and designing of these materials, but also in the practical and mechanical aspects of the work,—such as proofreading, selection of type, paper, cover stock, bindings, etc. Various specimens are studied and discussed and the students are required to prepare written work, correct proofs, estimate cost of different kinds of pamphlets, booklets, etc.

Group "b" deals with the proper use of newspapers and other mediums for building up the trade of a retail business. It covers the selection of the proper subjects to advertise and of arguments which prove most effective; styles of writing, of illustration, of type display; the preparation of plates and electrotypes; the selection and proper judging of advertising mediums.

Group "c" deals with the problems of the manufacturer who wishes to make his brand of goods known to the country at large; the questions of when

SCHOOL OF COMMERCE AND FINANCE

to advertise, how to advertise, how extensively to advertise; the selection of what part of the market to address, discussion of the different mediums available; securing co-operation of the selling force and of wholesale and retail merchants; the analysis of the specific results sought by means of advertising; selection of periodicals; preparation of argument, design, typography, etc.

This theoretical work is reviewed and reinforced by the practical working out of the details of several National advertising campaigns. Written work in the preparation of copy and plans is called for.

Group "d" includes general discussions of matters common to all the previous groups; studies of the Channels of Trade; discussion of advertising media from the point of view of their publishers; special work on the proper use of trade papers and trade follow-up.

Lecturers

Mr. William J. Boardman, of the firm of George Batten Company

Mr. Myron C. Leckner, of the Curtis Publishing Company

Mr. John J. Morgan, of the firm of Morgan & Morgan

Mr. Charles C. Parlin, of the Curtis Publishing Company

Mr. Walter G. Resor, of the firm of J. Walter Thompson Company

Commercial Credits

This is a required subject during the first term of the Senior year in the Business Administration course. It is presented in eighteen lectures on Tuesday evenings from 7 to 9.30, in Room 352.

A credit man should possess a thorough knowledge of business law and accounting, and he should be familiar with the functions of the buying, publicity and selling departments of the organization in which he is employed in that he may fully appreciate the relations of his work to these administrative departments, and in order that he may have the proper preparation for administrative positions to which he may be advanced. The Business Administration Course offers an ideal preparation to those who desire to become credit men. The credit department in modern business organization is a matter of comparatively recent origin, and the demand for properly trained credit men should act as an inducement to those who are willing to prepare for this comparatively new field of business specialization.

This subject will be presented in eighteen lectures by six credit men of broad experience. The first six lectures will deal with the more general principles of commercial credits, such as the organization and administration of a credit department; the records of a credit department, the mercantile agency—its functions and operations; the relation of the credit department to the selling and collection departments; instruments of collection; opening new accounts; the use of law lists; compiling credit statistics; insurance—its importance in credit transactions; the deciphering of financial statements; trade and cash discounts; the advantage and disadvantages of cash discounts; the consideration of local conditions; the effects of crises on credits; forecasting disastrous elements in credit granting, etc. These will be followed by twelve lectures dealing with different lines of credit,—wholesale, retail, commercial paper and banking.

This subject may be taken by any man who desires to secure the benefits to be derived from this excellent course of lectures. The tuition fee is \$15, payable in advance.

Lecturers

Mr. H. H. Humphrey, Credit Manager, Brown Durrell Company

Mr. John J. Mundo, Manager of Credit Department, Jordan Marsh Company

Mr. George H. Willcockson, Treasurer of Loose-Wiles Biscuit Company

Mr. Gardiner E. Thorpe, Superintendent of The Bradstreet Company

Mr. A. P. Brown, of the firm of F. S. Moseley & Company

Mr. Norman I. Adams, Manager of Credit Department, The National Shawmut Bank

DESCRIPTION OF COURSES

Sales Managership

This is a required subject during the second term of the Senior year in the Business Administration course. It is open to all men over eighteen years of age who desire to acquire a knowledge of the complex problems of sales managership. The tuition fee for the eighteen lectures is \$15. The class meets each Tuesday evening from 7.00 to 9.30 in Room 351.

The School of Commerce and Finance is the first institution to offer a complete course dealing exclusively with the fundamental principles of Sales Managership. The most efficient selling force can not produce the most efficient results unless it is properly managed. It is safe to say that the sales manager plays a more important part in the success of business in general than any other department head. Too little attention has been paid to this phase of modern business administration in the past, but the more progressive sales managers are making history through the application of efficiency principles and the establishment of sound fundamental methods. It is the object of this course to treat these principles and methods broadly and intelligently, and so that they may be applied to any line of business where a selling force has to be organized and administered. The business world is in need of just this kind of education as a means of promoting efficiency in that department of business which serves as the fountain head of distribution.

This course has been prepared and will be given by men whose wide experience as successful sales managers should guarantee the worth of the course. Active sales managers will condense in lectures years of experience in such a way that those taking the course will acquire an intimate knowledge of the work and responsibility required of a sales manager.

The intent is to present in a clear and practical manner the actual work of sales management. In so far as is possible the course will be illustrated with forms used in the conduct of sales departments for reports and statistical records. Some text-book assignments may be given during the course, and an endeavor will be made to put all those who take the course in touch with the best that has been written on the subject.

"The Salesmen" will be given considerable thought—Who is a Salesman—What are his Essential Qualities—How to Hire a Salesman—The Analysis of a Salesman's Work—The Salesman's Expense Account and the Collection of Accounts—Waking the Salesmen up to their Reserve Powers—Paving the Way for Salesmen—Working with Salesmen on the Territory—Shall the Salesman Sell His Advertising with His Product?

"Territorial Supervision of Salesmen"—The Sales Manager's Direct Relation to the Men in the Field—Special Salesmen—Field Managers—Branch House Managers—City Sales Managers—Country Sales Managers. The sales manager's relations to the factory, the office, and the advertising department is an important feature of the course.

"The Sales Campaign"—Planning the Campaign—How it is Conducted.

One important feature of the course will be the presentation of the retail side of sales management. In fact, the lecturers will endeavor to present the subject from as many different standpoints as possible. The nature of the businesses in which the lecturers are engaged suggest that the course will not be confined to any one particular field, but will cover a large number of the different problems which confront sales managers in various lines.

Lecturers

Mr. C. K. Woodbridge, Sales Manager Loose Wiles Biscuit Company
Mr. E. M. Fisher, Supervisor of Selling, William Filene's Sons Company
Mr. Franklin W. Ganse, Manager of Home Office Agency, The Columbian National Life Insurance Company
Mr. C. J. Johnson, Treasurer, Daniel Green Felt Shoe Company

SCHOOL OF COMMERCE AND FINANCE

Real Estate

This subject is given throughout the year on Friday evenings from 7.30 to 9.30 in Room 452. It may be elected as an additional subject by Seniors of the Business Administration course. It is presented in thirty-six lectures by specialists of recognized ability, and is under the directorship of Mr. S. Leland Montague, formerly Appraiser in the Mortgage Department of the United States Mortgage and Trust Company of New York.

This course of lectures is open to men who desire to benefit by the knowledge to be gained therefrom. The tuition fee is \$30, and may be paid in three instalments of \$10 each.

This Real Estate course may be described under two headings: the first division consisting of lectures presenting in an orderly and logical way the facts which are true of real estate wherever located; and the second division consisting of lectures given by specialists of prominence in realty affairs in the city of Boston. In other words, the first eighteen lectures deal with the general principles underlying realty values and the laws of change, growth, and depreciation. The last eighteen lectures deal with the practical side of real estate and are given by acknowledged experts. Briefly, they may be classified as follows:

Eight on Brokerage
Four on Agency
Two on Operating
Three on Investing
One—A General Summary

The preliminary course is based on the real estate history of over one hundred American cities and is designed to be of genuine value to brokers, agents, operators, bankers and trustees, assessors and appraisers. The first eleven lectures treat of classification by type, utility being the basis; of the effect of one type upon another; of the different city districts and their reactions one upon another; of growth,—radial and central; of the classification of cities, and the factors common to all; of the economic city, and the general factors supporting and maintaining our centres of population irrespective of their political boundary, and of the study and use of city statistics. The last seven lectures treat of values from the viewpoint of the investor, banker, and broker, and of appraising as an exact science.

The remaining eighteen lectures deal with the practical side of real estate business, and are given by specialists of recognized ability.

APPLICATION FOR REGISTRATION

(See other side for Instructions)

School of Commerce and Finance

of the

Boston Young Men's Christian Association

316 Huntington Avenue, Boston, Mass.

Date.....191

I,....., age.....years,
hereby apply for admission to the School of Commerce and

Finance as a { Freshman
 { Sophomore with advanced standing

in the { Business Administration Course.
 { Professional Accountancy

Residence Address.....

..... Telephone.....

Business { Name of employer

Address { Address

Telephone

What are the duties of your present position?.....

If a graduate of a college give name of college and degree.....

If a high school graduate give name and address of school.....

If not a high school graduate give particulars regarding your
academic training.....

Give a brief outline of your business experience.....

Please state how you first heard of the School of Commerce and
Finance; whether through a newspaper advertisement (if so,
give name of paper), a catalog (if so, how you came to acquire
it), a friend (give his name), or by whatever means.....

ApprovedDean.

(Space below is for Recorder's use)

Examination for advanced standing taken..... Grade.....

Enrollment card.....Record card.....

NOTE: Only those who desire to register for a complete course (either the Business Administration or Professional Accountancy) are required to file one of these applications. Those who enroll as special students, electing one or more subjects but not taking a complete course, are required merely to fill out a registration card which will be furnished upon application.

INSTRUCTIONS FOR REGISTRATION

Detach this application for registration, fill it out, and bring or send it to the School of Commerce and Finance, 316 Huntington Avenue, or (until October 1st.) 53 State Street, Boston, Mass., as soon as you have decided to enroll. If you spoil this blank send for another.

If you desire to enter as a Freshman draw a line through "Sophomore with advanced standing." If you elect to take the Business Administration course draw a line through "Professional Accountancy."

One who desires to enroll as a Sophomore with advanced standing is required to take an examination in double entry book-keeping on the evening of September 9 or 11 at 7 o'clock (see calendar on page 2).

AUTOMOBILE SCHOOL



Boston
Young Men's Christian Association
316 Huntington Avenue Boston, Mass.

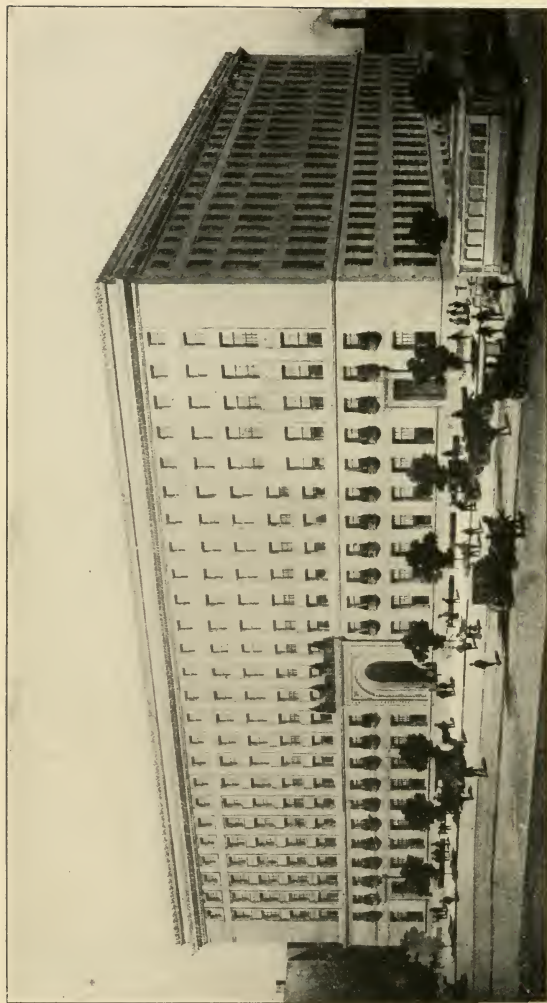
CATALOGUE

OF THE

Automobile School

1914-1915

Published by the
Boston Young Men's Christian Association
Boston, Mass.



OUR NEW HOME

The above cut represents the new Association Building, 316 Huntington Avenue. Contains among other features, school accommodations of the very best, a fine gymnasium, bowling alleys, swimming pool, cafe, dormitories, shops and laboratories, camera club rooms, social and recreative rooms and auditorium.

The Automobile School building is directly in the rear.

Officers of Administration



General Administrative Officers

ARTHUR S. JOHNSON
President

JACOB P. BATES
Vice-President

HAROLD PEABODY
Recording Secretary

FRANCIS B. SEARS
Treasurer

GEORGE W. MEHAFFEY
General Secretary

Educational Committee

WILLIAM E. MURDOCK

ALBERT H. CURTIS

MORGAN L. COOLEY

GEORGE P. HITCHCOCK

Educational Administrative Officers

FRANK P. SPEARE
Director of Education

GALEN D. LIGHT
Asst. Director and Bursar

CHARLES B. GRAY
Secretary

ERNEST H. BROOKE
Registrar

FRED L. DAWSON
Field Secretary

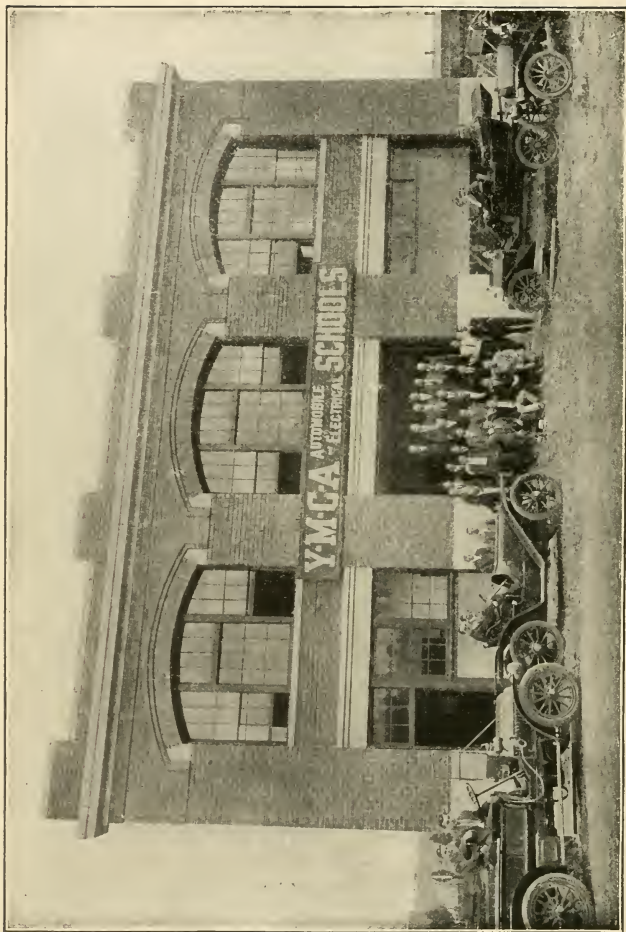
Advisory Committee

ELLIOTT LEE
Ex-President Mass. Automobile Club

J. S. HATHAWAY
Manager White Car Co.

C. F. WHITNEY
Automobile Dealer

CHESTER I. CAMPBELL
Manager Boston Automobile Show



NEW BUILDING OF THE BOSTON Y. M. C. A. AUTOMOBILE SCHOOL
288 St. Botolph St., Boston, Mass. Directly adjoining Main Association Plant

Faculty



FRANK G. WESTWOOD
Superintendent

ARTHUR ASHWORTH
Lecturer and Supt. of Laboratory Course

LEONARD E. FROST
Instructor in Laboratory Course

CHARLES L. PIERCE
Clerk in Laboratory

RALPH J. KARCH
Supt. in Machine Shop Repair Course
JOHN H. SALZGEBER
Instructor in Machine Shop Repair Course

ROBERT A. ARMSTRONG
Road Instructor

WILLIAM B. COWEN
Road Instructor

JOHN T. EVERIN
Supt. of Garage

P. A. GOODMAN
Assistant in Garage

EMIL FACKTOROFF
Assistant in Garage

General Information

The Boston Young Men's Christian Association has, for years, operated one of the most extensive and thorough school systems in the country. The Department of Education is organized as a university, having the following wholly distinct schools: the Huntington Preparatory School, with day and evening sessions; the School of Business, with day and evening sessions; the School of Commerce and Finance, of college grade, granting the Degrees of B. C. S. and M. C. S., with evening sessions; the Polytechnic School, offering many courses in Engineering and applied science, including one, two and three years' courses in applied electricity, with day and evening sessions; the Evening Law School, with a four years course, leading to the Degree of LL.B., with evening sessions; the School of Co-operative Engineering, with day sessions, enabling boys to earn while learning, offering four years' courses in Mechanical Engineering, Electrical Engineering, Civil Engineering and Chemical Engineering; the Automobile School, offering day sessions throughout the year and evening sessions from October to July and covering every phase of the automobile industry, with the exception of the manufacture of cars.

This great system of schools requires the services of over one hundred expert teachers, lecturers and assistants and the expenditure of a large amount of money. The attendance is nearly three thousand men and boys annually. Prospective students will note that they are entering a long-established, recognized school where satisfactory results are assured, and their best interests conserved.

THE VALUE OF A SCHOOL

Much has been said and written as to the methods necessary to become a skilful chauffeur or repair man and how the essential qualifications may best be obtained. This controversy is not peculiar to the automobile industry, but to every trade, occupation and profession. The time was when the law student obtained his legal education in the office of a lawyer. He attended to detail work, read what he could, absorbed as much as possible and finally passed very simple examinations, if any were required, and entered practice. Such a course was found, however, to be decidedly unsatisfactory. If the student happened to be in an office where the practice was largely criminal, a knowledge of criminal law was gained, but little else. If, in an office where real property or equity received the bulk of attention, these were his strong points. But, in any case, he was a one-sided man.

The same was true of the medical student who studied with a doctor; he was a narrow man. With the progress along educational lines, there came a demand for broadly trained lawyers and doctors, and, as a result, the accumulated knowledge and experience of the legal and medical professions were presented to students by men who gave their entire time to teaching and supervision. Consequently the young lawyer or doctor of today is an all-around man, thoroughly conversant with the theory and practice of his profession, and in possession of the experience of ages.

The shop-trained mechanic follows along the same lines. When he learns a certain trade or part of a trade, in a shop, he picks up what he can, but no one is responsible for his advancement or final attainments. If naturally bright and of a retentive memory, he will, in time, become skilled in certain operations, but he rarely rises above the bench and becomes a superintendent or mechanical engineer who is the product of the technical school. In the training of men for the automobile industry, the same plan holds good. A school is the place, provided the school is a good one, well equipped, well taught and properly conducted.

THE CHAUFFEUR

The chauffeur occupies a position very similar to that of the locomotive engineer. His function is to drive with care, make adjustments, know when his machine needs important repairs, and see that they are made; in other words, to operate his car with efficiency and the greatest possible economy. Too many chauffeurs lose sight of this last requirement, and fail to keep down the expenses. It is only the man who has a thorough knowledge of his car, who knows the mechanism, its possibilities and limitations, the function of every part, the possible derangements, their symptoms and how to repair them, who is really efficient.

The chauffeur sustains a peculiar relation to his employer. He is not a servant, on the one hand, nor a companion, on the other; he is supposed to be a skilful, well-trained, competent, gentlemanly, respectful employee, who not only knows his business, but his place, and where he fits into the transportation problem. All of these points, mechanical, social and economic, are presented in the well-conducted automobile school, and as a result, the chauffeur knows his profession, and is alert to the responsibilities and requirements, and is prepared to meet them. He sustains the same relationship to the automobile industry that the marine engineering department of the United States navy does to our entire naval establishment. These engineers are graduates of the Naval Academy at Annapolis, and are cultured, refined gentlemen, yet they put on overalls and stand

watch in a hot engine room below decks surrounded by engines of all descriptions, with complete knowledge of every nut, bolt and shaft of the entire vessel. These men do not apologize for their grimy hands, but instead of being classed as ordinary mechanics, have raised the whole standard of marine engineering to the gentleman's level, and have shown that the skilled operator of expensive and delicate machinery is quite on a par with his cleaner, though no more honorable, fellow-officer of the quarter-deck. The chauffeur should thus regard his profession, and seek to be an indispensable adjunct to every refined American home which can afford the luxury of a motor car; or if in commercial lines, he should strive to make himself a thorough master of the requirements and economic conditions of the industry, and be an important factor in it. This high conception of the automobile industry and the function of the chauffeur and repair man make attendance at a well-conducted automobile school indispensable, and it is these features which are prominent in the work of the Automobile School of the Boston Young Men's Christian Association.

THE SCHOOL AND ITS WORK

The Automobile School of the Boston Young Men's Christian Association was the first in America and has been in operation for twelve years. More than six thousand students have graduated, a large percentage of whom today are holding good positions all over the country. The school was designed to train men to become chauffeurs and repair men, but of late, it has been attended by a great many owners preparing to drive their own cars.

The pioneer of this Automobile School was Mr. W. C. Hosford, who, as manager, brought our school up to its high state of efficiency and developed the very able corp of men who now handle the school. Owing to close application and long hours, Mr. Hosford felt obliged at the close of the present school year to take up some less arduous work. Knowing of the contemplated change, Mr. Hosford selected with greatest care the best men from the graduates of the school and left it in a splendid condition. Many changes and improvements contemplated by Mr. Hosford will be put in operation the coming year under the direction of Mr. Frank G. Westwood, the present superintendent.

THE AIM OF OUR SCHOOL

1. To fit chauffeurs thoroughly for the responsibility of operating a car on a public highway; to equip them with a thorough knowledge of the mechanism; the requirements for its care; the troubles which are likely to occur; their symptoms, tests and remedies; to make adjustments and drive skilfully.

2. To provide a thorough and strictly up-to-date Machine Shop Repair course. This course includes instruction on motor trucks and pleasure vehicles, that the student may secure and hold a position in any well regulated repair shop.

3. To train men as demonstrators and salesmen and for the business in general. The courses are also of great value to the man whose business brings him in touch with the automobile trade as a dealer in sundries or as press representative.

4. To meet the needs of the prospective purchaser, that he may buy intelligently.

5. To enable the owner to understand the mechanical principles and requirements for care, so that he may save repair bills, enjoy his car and get longer service from it.

THE FACULTY

The Faculty of the Association Automobile School has been selected with great care regarding technical skill, high moral character, interest in the work and ability to teach. Every member is a graduate of the school.

The students are taught by these men of technical training, practical shop experience and refinement. These men give their full time to the school, and are interested in the personal development and success of every student.

They regard the work of a chauffeur and repair man as a dignified calling, and have sought to accumulate all the knowledge and experience obtainable from the most reliable sources, and to present this information in an attractive and useful form. It is safe to state that no young man with any mechanical ability, who also possesses character and tact, can fail, upon taking our Automobile course, to become a very useful man to anyone requiring a competent chauffeur and repair man, a truck driver or garage hand.

EQUIPMENT

The constant and rapid changes in automobile engineering make it difficult and extremely expensive to keep the equipment of an automobile school up to the minute. Until the engineering practice becomes settled and standardized, no automobile school can afford to meet every change. Our policy has been to equip the school with standard cars, parts and accessories, and then to illustrate the modifications as fast as they take place. All technical schools find the equipment account a heavy burden, and the automobile development has been so sudden, constant, and radical, that no other school, to our knowledge, except that in Boston, has been able to even keep in sight of the procession. We have invested thousands of dollars in live equipment, and the present year will modernize, re-build, substitute, and bring it up to date.

The Courses

The automobile fraternity, owners and employers, are well aware of the great responsibility which rests upon a chauffeur, or operator. Not only is he responsible for the care of an expensive mechanism, but human life is directly under his charge. The owners and occupants of every automobile, and likewise the public, demand their proper share of protection. In view of this fact, the following courses have been worked out thoroughly and adopted.

CHAUFFEURS' AND OPERATORS' LECTURE COURSE

Pleasure Cars or Motor Trucks

This course is designed to assist those who wish a thorough knowledge of the construction and care of the automobile and comprises demonstration lectures in which are presented the operative principles, different types of cars, requirements for care and the difficulties which are likely to occur in connection with each part, together with their symptoms, tests and remedies.

The following syllabus indicates the principal subjects of the lectures: analysis of the gasoline vehicle; names of parts and their purpose; theory of explosion; operative principles of the internal combustion engine as used in the pleasure car or motor truck.

Various designs of engines and their requirements for care; methods of timing and setting valves; weak compression, causes and remedies.

Carburetors, various types; difficulties and remedies.

Cooling systems and requirements for care; governor and throttle action.

Study of ignition systems; various methods and parts of equipment; derangements; symptoms and remedies.

Operative principle of Low and High Tension Magnetos, together with illustrations regarding the care, difficulties, symptoms and remedies of same.

Electric light generators and self cranking motors and their care and maintenance.

Requirements for care and adjustment of clutches, and various types of change-speed gears.

Study of differential gear; centre-shaft drive; double-chain drive, worm gear drive and care of the same.

Road derangements and remedies; care and repair of tires; care of lamps and accessories.

Construction of steering gear and brakes, and action of controlling levers on the road.

Systematic inspection of car and duties of a chauffeur.



DAY CLASS IN LECTURE ROOM

Touring necessities; tool equipment; lighting systems, gas and electric, and care of the same; rules for preparing a car for a trip and starting engine, self-starting devices, various types and care of same.

The lecture course is one of the most valuable features of the entire School and is characterized by scientific, practical instruction relating to every phase of the automobile industry, care and up-keep, possible derangements, their symptoms and cure. No owner, intending purchaser or operator of a pleasure car or motor truck can fail to secure the greatest benefit from these lectures.

SCHEDULE

Day Course. Prior to September 14, 1914, lectures will be given on Monday, Wednesday and Friday afternoons at 1.30. Beginning September 14, the lectures are scheduled for each morning at 10 o'clock (except Saturdays). Fifteen lectures will constitute the course and will be repeated every four weeks throughout the year. (See schedule of new courses on page 19.)

Evening Course. Lectures on Monday and Thursday evenings at 7.30, beginning Monday, October 5, and continuing for nine weeks. These lectures are repeated throughout the year except during July, August and September.

For tuition rates see page 17.

CHAUFFEURS' AND OPERATORS' LABORATORY COURSE

Pleasure Cars or Motor Trucks

In the course, students receive in actual shop practice the work as outlined in the Lecture Course, and each student is required to perform the duties devolving upon operators in the care, control and management of pleasure cars and motor trucks; to take down and reassemble and adjust engines and cars, getting practical experience in grinding valves, testing for weak compression and applying the remedies, removing carbonization, adjusting connecting rods, timing engines, dissecting carburetors and locating difficulties and adjusting properly; testing for ignition difficulties, circuiting the lines to locate trouble, adjusting vibrators, locating skipping cylinders, cleaning spark-plugs, testing batteries and caring for them when used for ignition, electric lighting or self-starting, dissecting high and low tension magneto, timing magneto, adjusting and cleaning circuit breaker, locating and remedying magneto difficulties; adjustment and care of steering gear, springs, wheels and brakes; care of lighting systems and self-starters; testing and adjusting for proper supply of oil to cylinders; care of tires, removing, vulcanizing and replacing the same.

STUDENTS IN THE LABORATORY COURSE AT WORK



We wish to emphasize the fact that each student is required to actually perform, in person, the above shop exercises and tests, and many more.

The Laboratory course is of extreme practical value, owing to the fact that the work covered in the lecture course is actually done by each student, then inspected and passed upon by the instructor. This work is indispensable to one who wishes to know HOW, as well as WHY.

This course is open only to those who are taking the lecture course, or who pass an entrance examination.

Each student should provide himself with jumper, overalls, 6-inch screw-driver, 8-inch monkey wrench and a pair of 5-inch pliers, which can be purchased at the school if desired. The other tools are furnished by the school.

SCHEDULE

Day Course. Prior to September 14, 1914, the laboratory work will be given every other day from 9 a.m. to 5 p.m. for six weeks alternating with the lectures. After September 14 the laboratory work will be scheduled for each afternoon except Saturday, from 1 to 5, Saturdays from 9 to 12 a.m., for three weeks of each course. On the fourth week, 5½ days of laboratory work will be given.

Evening Course. Laboratory work Tuesday and Friday evenings from 7 to 9.30. This course is nine weeks in length and is conducted throughout the year except during July, August and September.

For tuition rates see page 17.

CHAUFFEURS' AND OPERATORS' ROAD COURSE

Pleasure Cars or Motor Trucks

This course is to accommodate those who wish to learn to drive pleasure cars or motor trucks and secure an Operators' or Professional Chauffeurs' License and is characterized by actual experience in driving up-to-date touring cars or trucks over all conditions of roads, including city traffic, and under expert instructors. This course illustrates the approved methods of managing the controlling levers, throttle, spark, clutches, brake, gear-shifter, accelerators, and involves thorough experience in turning in narrow streets, hill climbing and reversing.

Students seeking a Professional Chauffeur's License in Massachusetts are required to pass a rigid examination, requiring the applicant to give a demonstration under the inspection of the State Board of Examiners.

The use of the car for the demonstration at the Highway Commission is included in the regular Road Course without additional

charge. Should the student fail to pass the State examination on the first trial, he is given an additional road session and the use of the car for a second examination without additional charge.

The Road instruction in our school, therefore, is very thorough and is in charge of exceptionally careful and competent instructors.

Schedule

When the road course is taken alone, the time required is two weeks for the day course and three weeks for the evening course. When the road work is taken with the lecture and laboratory courses, the road lessons can be scheduled so as not to conflict with the lectures or laboratory exercises, thus enabling the student to complete the three courses, when taken during the day in six weeks prior to September 14, and thereafter in four weeks; or, when taken in the evening, in nine weeks.

For tuition rates see page 17.

CHAUFFEURS' AND OPERATORS' UNLIMITED COURSE

Pleasure Cars or Motor Trucks

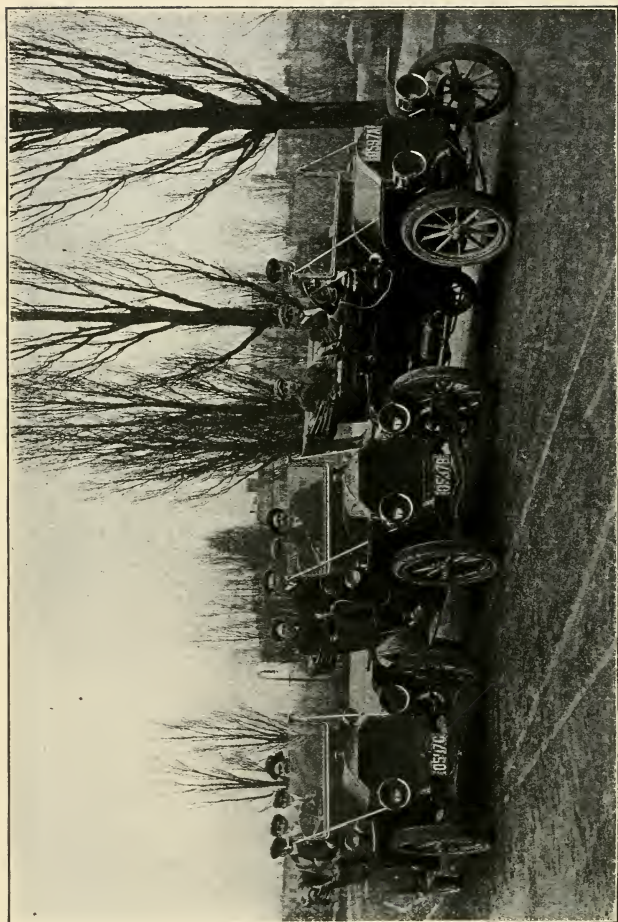
This course is a combination of the three previously described courses, viz: Lecture, Laboratory, and Road as described on pages 10, 12 and 14, these three comprise the regular well-known and popular *Boston Y.M.C.A. Automobile Course*, and all are necessary to one who wishes to become a proficient chauffeur or operator.

When taking the *Chauffeurs' and Operators' Unlimited Course* the Road Lessons are given during the latter part or at completion of Lecture and Laboratory Courses, the time of taking them being optional with the student.

To all passing examinations in this course, a Special Unlimited Chauffeurs' and Operators' Diploma will be granted.

AUTOMOBILE MACHINE SHOP REPAIR COURSE

This course provides instructions and experience for men wishing more advanced work than that given in the Operators' and Chauffeurs' Course. The instruction will be arranged to prepare a man to do the more difficult repairing on the car he drives or to prepare him to hold a position as repair man in a garage.



STUDENTS TAKING ROAD LESSONS

A fixed course is not laid out but must depend upon the ability of the student and his previous training and experience.

It has been found that graduates of the Operators' and Chauffeurs' Course are best adapted to this course, regardless of any previous experience with gasolene engines or automobiles.

The equipment of the Repair Shop is as good as that in the first-class shops.

Schedule

Day Course. Five days a week from 9 A.M. to 5 P.M. with the exception of Saturday when the hours are from 9 to 12 M. The course is nine weeks in length and is repeated throughout the year.

Evening Course. Five evenings per week from 7 to 9.30 for eighteen weeks. The course is offered through the year except during July, August and September.

For tuition rates see page 17.

CONDENSED SCHEDULE AND TUITION

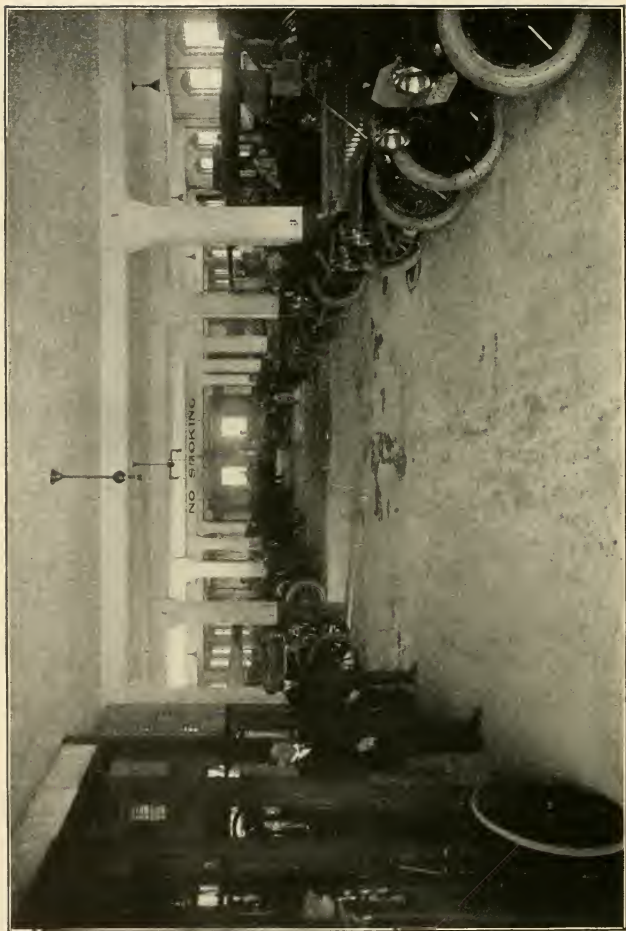
All rates quoted below are in addition to membership in the Boston Young Men's Christian Association (\$2.00), which entitles the student to many privileges in the Association for one year. This membership fee is always payable upon entering as are also the tuition fees with the following exceptions:

In the Chauffeurs' and Operators' Unlimited Course, \$32.00 only (including the \$2.00 membership fee) is payable upon entering, and the balance of \$25.00 on or before taking the Road Course.

In the Machine Shop Repair course \$32.00 only (including the \$2.00 membership fee) is payable upon entering, and the balance of \$25.00 at the completion of one-third of the course.

<i>Courses</i>	<i>Tuition</i>	<i>Length</i>	<i>Time</i>	<i>See Page</i>
Chauffeurs' and Operators' Lecture Course... (See note below)	\$15.00	3 weeks	Day	10
Chauffeurs' and Operators' Laboratory Course (See note below)	15.00	9 weeks	Evg.	
Chauffeurs' and Operators' Road Course....	25.00	4 weeks	Day	12
(See note below)		9 weeks	Evg.	
Chauffeurs' and Operators' Unlimited Course		2 weeks	Day	14
Combining Lecture, Laboratory and Road Courses. (See note below).	55.00	3 weeks	Evg.	
Automobile Machine Shop Repair Course....	55.00	4 weeks	Day	15
		9 weeks	Evg.	
		18 weeks	Evg.	

Note.—Prior to September 14, 1914 the Day, Lecture and Shop courses will continue as six week courses. Beginning September 14, 1914, the length of time required for these courses



INTERIOR OF GARAGE

will be four weeks. This schedule necessitates reducing the number of lectures from eighteen to fifteen, but will increase by fifteen the number of hours in the Laboratory thereby enabling the school to offer more of the practical work. For hours see schedule under the description of each course.

DATES OF OPENING OF COURSES

Day Course. Prospective students are advised to enter at the beginning of a course as per schedule given herewith. It is possible, however, under certain conditions to enter the course at any time.

Aug. 3rd.	Jan. 4th.	May 24th.
Sept. 14th.	Feb. 1st.	June 21th.
Oct 13th.	Mar. 1st.	July 19th.
Nov. 9th.	Mar. 29th.	Aug. 16th.
Dec. 7th.	Apr. 26th	

Evening Course.—The first evening course will begin October 5th. and be repeated every nine weeks excepting during July, August and September.

The Machine Shop Repair course (Day and Evening) may be entered at any time.

Additional Information

LOCATION

The school is centrally located in the popular Back Bay section of the city and in close proximity to prominent public buildings and institutions.

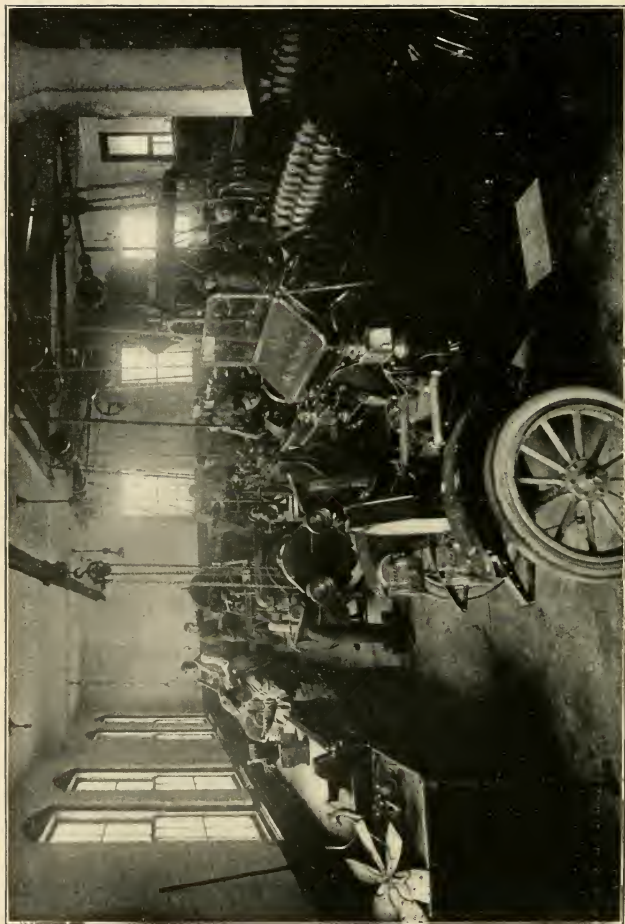
Our school is easily accessible from all parts of the city, and the various depots via Huntington Avenue and Massachusetts Avenue cars. Entrance is made through the Main Building at 316 Huntington Avenue or 288 St. Botolph Street.

MEMBERSHIP

All students pursuing courses in the school must hold a membership in the Boston Young Men's Christian Association. *Privileges in the Association.*

Students are reminded of the fact that when they enroll as students in the school they become members of the Association and as such are entitled to many privileges and are surrounded by uplifting influences. Ask for our Year Book which enumerates the many privileges open to members.

Our membership ticket is transferable to any other Association and *vice versa*.



STUDENTS AT WORK IN THE REPAIR SHOP

THE PROOF OF IT

The proof of the efficiency of any school is shown by the success of its graduates. We will mail you, upon request, testimonials which we do not have room to place in our regular catalogue. Our school has a national reputation, and has won recognition as the most progressive, modern and effective automobile school in America and we are pleased to refer prospective students to the leading dealers throughout the New England States. It is very gratifying to know that a very large number of our students have been referred to us by dealers and others who are connected with the automobile industry. This indicates very strongly that the men who best know the exact requirements of one engaged in the automobile field believe thoroughly in our ability to meet those requirements.

A WORD AS TO PROSPECT

There is no occupation in which a small investment is capable of yielding so great a return. To the owner or prospective purchaser it means the saving of hundreds of dollars in repairs and up-keep. To the chauffeur it means a well-paying and responsible position at wages, much in excess of those paid in most lines of work. To the truck driver it means bright prospects in a new and growing industry with unlimited opportunities. To the repair man and garage keeper it means admission to a broad field of activity and a well-paid employment.

EMPLOYMENT

We are frequently asked if we guarantee positions to those completing our courses. In reply we would state that we make the same guarantee that any college or high-grade school does, namely, that of a thorough course.

No reputable school ever guarantees a job to gain a student. The school maintains an active and proficient employment department. Upwards of two thousand men, graduates of our school, are holding positions as chauffeurs, a large number of whom have secured their positions through our employment department.

VISIT TO OUR SCHOOL URGED

We urge all men contemplating taking an automobile school course to call at the office of the Department of Education, talk the matter over in detail and secure a visitor's pass to the school.

ADVISORY BOARD

Attention is called to the members of our Advisory Board whose names appear in the front part of the catalogue. They are some of Boston's most prominent automobile representatives.

BACKWARD STUDENTS

Should a student be deficient in the shop or lecture work at the close of his course, and be unable to pass the examination, he is privileged to remain a reasonable length of time and receive additional instruction without extra charge.

ADVANTAGES TO OUT-OF-TOWN STUDENTS

The Association is exceptionally well prepared to be of assistance to those who come from distant places and are obliged to board in the city while taking the course. We have a selected list of rooms and boarding places. Employment is sometimes secured through our Employment Department for those who wish to earn money while taking our courses, in which case the usual fees charged by this department are required.

For additional information call on or write to Frank Palmer Speare, Director of Education, Boston Young Men's Christian Association, 316 Huntington Ave., Boston.

COURSES IN DAY SCHOOLS

Alternating Current	Geometry, Analytical
Alternating Current Laboratory	Geometry, Descriptive
Alternating Current Machinery	German I
Algebra I	German II
Algebra II	German III
Applied Mechanics I	German IV
Applied Mechanics II	Greek
Applied Mechanics III	High Temperature Measurements
Applied Mechanics, Laboratory	Highway Engineering
Arithmetic, Commercial	Heat Engineering Thermodynamics and Boilers
Arithmetic, General	History, American
Automobile Machine Shop Course	History, Ancient
Automobile, Operators' Laboratory Course	Hydraulics, Theoretical
Automobile, Operator's Lecture Course	Hydraulic Motors
Automobile, Operators' Road Course	Hydraulic and Sanitary Engineering
Bookkeeping, Elementary	Illumination and Photometry
Bookkeeping, Advanced	Industrial Chemistry
Calculus	Industrial Design
Central Stations	Intercommunicating Telephones
Chemistry I	Latin I
Chemistry II	Latin II
Chemistry I, Engineering	Latin III
Chemistry II, Engineering	Latin IV
Design, Machine	Law, Commercial
Design, Power Plant	Lettering
Design, Structural	Lithology
Drawing, Architectural; and Show Card Writing	Materials
Drawing, Boiler	Mathematics I, Engineering
Drawing, Freehand	Mathematics II, Engineering
Drawing, Machine	Machine Design
Drawing, Mechanical	Metal Work
Dynamics of Machines	Metallurgy of Iron
Elementary Electrical Laboratory	Penmanship
Electrical Engineering Laboratory	Physics I
Elementary Science	Physics II
Electric Railways	Physics, Laboratory
Electricity I	Qualitative Analysis
Electricity II	Quantitative Analysis
Electricity III	Railroad Engineering
Electric Light and Transmission of Power	Shorthand I
English I	Shorthand II
English II	Spanish
English III	Spelling
English IV	Stereotomy
English, Business	Studies in Electrical Construction
Forging, Chipping and Filing	Surveying I
Foundations	Surveying II
Foundry Practice	Trigonometry
French I	Typewriting
French II	Theory of Structures
French III	Technical Electrical Measurements
French IV	Valve Gears
Geometry, Plane	Wiring and National Code
Geometry, Solid	Wood Working and Pattern Work
	Theory of Structures, Bridges and Similar Structures
	Advanced Structures
	Railroad Design
	Mechanism

COURSES IN EVENING SCHOOLS

Agency	French III
Algebra, Elementary	French IV
Algebra, Advanced	Geometry, Analytical
Arithmetic, Commercial	Geometry, Plane
Arithmetic, General	Geometry, Solid
Auditing, Elements of	German I
Auditing, Advanced	German II
Automobile Courses:	German III
Chauffeurs' and Operators' Lecture	German IV
Chauffeurs' and Operators' Laboratory	Greek
Chauffeurs' and Operators' Road	History, American
Machine Shop Repair	History, Ancient
Banking	Illustrating and Cartooning
Bankruptcy	Industrial Design
Bills and Notes	Investments
Bookkeeping, Elementary	Italian
Bookkeeping, Advanced	Latin I
Bridge Design	Latin II
Buying	Latin III
Calculus	Latin IV
Chemistry	Law, Commerical
Elementary	Law, Special (in Law School)
Qualitative Analysis	Lettering
Quamtative Analysis	Machine Drawing
Organic	Massachusetts Practice
Civil Service	Mathematics, Engineering
Commercial Credits	Mathematics, Practical
Commercial Resources	Mechanism
Constitutional Law	Office Organization and Administration
Contracts	Partnership
Conveyancing	Penmanship
Corporations	Physical Geography
Corporation Finance	Physics
Corporate Reorganizations	Physiology
Cost Accounting, Elements of	Plan Reading and Estimating
Cost Accounting, Advanced	Pleading
Criminal Law	Property I
Crises, Commercial	Property II
Drawing, Freehand	Property III
Drawing, Mechanical	Public Accounting
Economics, Applied	Publicity
Economics, Principles of	Railroad Engineering
Electricity I	Reinforced Concrete Construction
Electricity II	Sales
Electricity III	Selling
Elementary Mechanics	Shorthand I
Elementary Science	Shorthand II
English I	Spanish
English II	Spelling
English III	Steam Engineering
English IV	Steel Building Construction
English, Business	Structural Drafting and Detailing
Equity I	Surveying, Elementary
Equity II	Surveying, Advanced
Evidence	System Building, Elements of
Factory Organization and Administration	System Building, Advanced
Firing	Teachers' Industrial Course
French I	Torts
French II	Trigonometry
	Typewriting

Other Departments

Recreation and Health

ALBERT E. GARLAND, M.D., B.P.E., Director

The physical work is under the best supervision, and the aim is to better fit men for their life work by increasing their efficiency through exercise. We offer: Well equipped gymnasiums, Recreative Hygienic and Education Gymnastics. Numerous classes the year round. Shower, steam and electric baths. Best instruction. Medical direction. Hand ball courts. Basket Ball, Baseball and Athletics.

Religious Work

NON-SECTARIAN

EDWIN W. PEIRCE, Secretary.

In order that a young man may secure a well-balanced development and attain the true foundation for successful life work, the Association advises each member in planning his schedule to enter into one or more of the following activities:

Bible Study, Training for Christian Service, Sunday Meetings of Men, Personal Service Groups and The Twenty-Four-Hour-A-Day Club.

Ask for Bible Institute catalog and other printed matter.)

Social Work

DAVID M. CLAGHORN, Secretary

The attention of members is called to the many opportunities in the Association for social service, and the following social features:

Newly Equipped Game Rooms	The Popular Novel Club
The Association Congress	The Land and Water Club
Camera Club	Glee Club
Recreation Headquarters at Riverside	
Popular Social Evenings and Entertainments	

Department of Employment

FREDERICK W. ROBINSON, Secretary

The Employment Department is in actual practice, a clearing house for young men seeking work, and employers who wish to engage reliable help. From 5000 to 8000 men apply every year. Members of the Association are given 25 per cent discount from the legal rates and special effort is made to notify them when good positions are open.

Boy's Department

DON S. GATES, A.B., City Secretary

The physical, social, employment and religious advantages offered to boys from twelve to eighteen years, are similar to those offered to men as stated above. Members of the school may use the boys' Game and Social Rooms and take part in special activities, such as Entertainments, Minstrel Shows, Debates, Bible Classes, Clubs, etc.

